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A Study of Instructional Practices of Teachers of Small Classes at Various Grade Levels

Edward William Fickley
University of Tennessee, Knoxville

To the Graduate Council:

I am submitting herewith a dissertation written by Edward William Fickley entitled "A Study of Instructional Practices of Teachers of Small Classes at Various Grade Levels." I have examined the final electronic copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Education, with a major in Instructional Technology and Educational Studies.

Theodore W. Hipple, Major Professor

We have read this dissertation and recommend its acceptance:

Mary Jane Connelly, Russell L. French, John R. Ray

Accepted for the Council:

Carolyn R. Hodges

Vice Provost and Dean of the Graduate School

(Original signatures are on file with official student records.)

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A Study of Instructional Practices of Teachers of Small Classes at Various Grade Levels

A Dissertation
Presented for the
Doctor of Education Degree

The University of Tennessee, Knoxville

Edward William Fickley

August 2004

Dedication

This dissertation is dedicated to the Lord Jesus Christ

to whom I give all glory and honor.

"Whether therefore you eat or drink or whatsoever you do,

do all to the glory of God." (I Corinthians 10:31)

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There are several people I must acknowledge and thank for their help over the last several years. First, I want to thank my advisor, Dr. Ted Hipple, for his constant encouragement and guidance throughout my doctoral program. He is truly a dedicated teacher, a consummate professional, and a fine human being. Be well Dr. Hipple. I also want to thank Dr. John Ray and Dr. Mary Jane Connelly for their encouragement and help, and I especially want to recognize Dr. Russ French for his dedication and commitment to helping me fine tune the dissertation.

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Abstract

This study investigated the instructional practices of first and third grade teachers of small classes that were part of the Academy program established by an East Tennessee metropolitan school district for at-risk students. Each Academy limited class size to 15. Specifically, this study sought to understand what instructional practices Academy teachers used with their small classes, what differences or similarities existed between first and third grade teachers' instructional practices, and what were the Academy teachers' perceptions of how their instructional practices changed from prior experience with larger classes.

This study employed a descriptive, collective case study design, and data were collected through non-participant observations and partially-structured, teacher interviews. Three 30-minute observations of each of the 10 Academy teachers were conducted over several months. Durations were recorded for the following teacher practices: direct instruction, independent seatwork, drill and practice, teacher-led question and answer, individual tutoring, cooperative learning, and inquiry-based methods. After each observation was completed, the teacher was ranked based on a five 5 point Likert scale with 5 = extensively, 4 = frequently, 3 = occasionally, 2 = rarely, and 1 = not observed for the following instructional strategies: use of manipulatives, integration of learning centers, use of differentiated instruction, promotion of student engagement, and individual contact with students . The observations were followed up with recorded partially-structured, teacher interviews.

The researcher concluded that Academy teachers predominately use the teacher-centered practices of direct instruction and independent seatwork with their small classes. Teachers frequently promoted student engagement and made individual contact with students, and to a lesser extent, they integrated student-centered activities through manipulatives and learning centers. There were no major differences between first and third grade teachers in regard to their instructional practices. Teachers perceived that small classes strengthen the instructional practices they commonly used with larger classes. Academy teachers believed that small classes promote the integration of manipulatives and learning centers, allow for easier evaluation of student progress, and provide additional time for re-teaching and review. Additional findings of this study suggest that small classes create a unique, family-like atmosphere that enhances instruction.

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Chapter 1

Introduction

With the growth of schools over the last century and the increase in mandatory education, the issue of class size effectiveness has been a concern for educators. The nineteenth century school experience was often either a one-room schoolhouse affair or the luxury of private education available to the middle class or rich. Classes were naturally small. Small class size was not as much of an issue then as it is today. After World War II, the population exploded with the baby boom generation and schools scrambled to provide teachers and class space. Increased class size and teacher load led to the question: what is the optimum class size? Most educators agree that there is at least some benefit for students in small classes, but they disagree as to the reason and the significance of the relationship between class size and achievement.

Two major camps of research on the effect of small classes on achievement exist. One camp believes emphatically that small classes benefit students educationally and that school systems should implement a policy of class reduction to take advantage of that relationship (Achilles, 1998; Glass, Cahen, Smith, Filby, 1982; Glass & Smith, 1978). The other believes that benefits for small classes are minimal or negligible and it would be cost prohibitive to implement class reduction (Educational Research Services, 1980; Slavin, 1990; Hanushek, 1999).

Over the last two decades, a number of studies were conducted in order to determine whether reducing class size is beneficial for increasing student achievement.

The most in-depth and well-recognized study supporting reducing class size in order to increase student achievement was the STAR project conducted between 1985 and 1989 in Tennessee. The STAR project utilized an experimental design and randomly assigned students and teachers to the following three types of classes: small classes (13-17 students), regular-size classes (22-26 students), and regular-size classes with a teacher's aide. Small classes showed greater gains in math and reading achievement than did the other two types of classes (Word et al., 1990). STAR's Lasting Benefits Study purports that the students who participated in the small classes at the primary school level have benefited academically throughout their schooling experience (Nye, 2001).

A number of other studies have followed in STAR's footsteps and evidenced the benefits of reducing class size in order to improve student achievement, but there is hardly any research examining why small classes benefit students academically (Ehrenberg, Brewer, Gamoran, & Willms, 2001). Biddle and Berliner (2002) report that small classes allow teachers to utilize small groups, hands-on projects, provide individual attention, individualize instruction, and institute other creative instructional approaches. The STAR project and other studies showed the greatest gain in achievement scores in kindergarten and first grade where teachers are most likely to use these types of instructional approaches. Clearly, understanding of the dynamics between class size and instructional methodology can benefit policymakers and educators by helping them best maximize the benefits of small classes, and provide an impetus for training small class teachers.

Statement of Problem

Over the last four decades, researchers and educators have debated the effectiveness and profitability of reducing class size. Do smaller classes lead to higher academic achievement? Is reducing class size a financially profitable and feasible endeavor for educators to consider? How does reducing class size affect the learning environment? These questions are just a few considerations when one considers the importance of class size. Research has shown that class size affects student achievement, but further research is needed in order to understand why. The problem addressed by this study focuses is the relationship between how small classes and the learning environment. Specifically, "How do small classes affect instructional practices?" Up to this point, the preponderance of evidence has focused on the connection between class size and student achievement. In order to understand better the positive influence small class size has on academic achievement, studies must focus on the learning environment small classes create, especially in regard to instructional practices.

If reducing class size is useful in increasing student learning and achievement, then research must be done to show how and why. Educators and policymakers must understand what the optimal class size is for various grade levels and where the reduction of class size is most beneficial. They must also consider how to maximize the influence of small classes by creating the optimal learning environment for success.

Purpose of Study

Since much of the available research supports an increase in student achievement as class size is reduced, it is important to understand the factors that might cause this negative relationship. Over the last several years, research has attempted to shed light on how reducing class size influences student achievement. One factor of study is the impact class size has on the instructional practices of teachers. Understanding connections between small classes and instructional practices can better help educators and policymakers take full advantage of reducing class sizes. The purpose of this study is to examine the instructional practices of small class teachers, as well as determine their perceptions of how they teach differently in regard to class size. In 2001, the Cleveland City Schools District created Academy classes in each of its elementary schools to help promote academic growth among at-risk students in kindergarten. In 2002 they expanded the program to include third grade, and in 2003 they shifted the focus of the Academy program from kindergarten to first grade. One significant factor in the Academy program was the reduction of these classes to 15 or fewer students in each class. Using the Academy program as a source of research, this study attempts to examine the instructional practices in first and third grade classes in order to gain greater insight into the connection between instructional practices and class size, and thereby be a springboard for further research.

Design of the Study

Since much of the research explored in the review of literature of this study addresses the issue of the relationship of class size to achievement, it is necessary to explore the reasons class size has an impact on achievement. With this in mind, it became obvious that a descriptive research study that employs both qualitative and quantitative methods would help explore and describe instructional practices in small classes. This study is intended to be a springboard that launches other studies so that a greater in-depth analysis of how class size influences teaching practices can be better understood. Therefore, the following research questions were developed as the framework of this investigation:

1. What instructional practices do Academy teachers employ in their small classes?
2. What differences and similarities in instructional practices exist between first and third grade Academy classes?
3. What changes in their instructional practices do Academy teachers perceive as a result of teaching small classes?

This study employed classroom observations and teacher interviews to gather information to answer the research questions. Three 30-minute observations for each Academy teacher were conducted. The observations recorded durations of teacher practices and evaluated five instructional strategies on a five point Likert scale. Means and standard deviations were calculated for each instructional practice for first grade teachers, third grade teachers, and the Academy teachers as a whole. As described by

Gay and Airasian (2000), a partially structured interview was created for this study. Each Academy teacher interview was tape-recorded and transcribed. Interview data were coded and themes identified. In order to address research questions one and two, observational and interview data were synthesized by triangulation, and interview data addressed research question three.

Definition of Terms

It is important to understand several terms used throughout this study. Instructional practices include teacher practices, instructional orientation, classroom organization, and student activities teachers utilize to help students meet the objectives of the planned lessons and curriculum. Instructional practices include teacher practices and instructional strategies as described in the Academy Class Observation Administration Manual (Appendix D). Teacher practices are the strategies and activities teachers use to convey content and material. For the purpose of this study, teacher practices include direct instruction, independent seatwork, drill and practice, teacher-led question and answer, individual tutoring, cooperative learning, and inquiry-based learning. Instructional strategies are the broad methods teachers use to reinforce and strengthen learning. These include manipulatives, learning centers, differentiated instruction, promotion of student engagement, and individual contact with students. Basically, there are two categories of instructional practices, teacher-centered and student-centered.

Examples of teacher-centered instructional practices include direct instruction or lecture, drill and practice, independent seatwork, individual tutoring, question and answer strategies, and teacher-led group discussion. According to Jacobsen, Eggen, and Kauchak (1989) teacher-centered questioning techniques include prompting, probing, redirecting, and wait-time.

Student-centered instructional practices include cooperative/collaborative learning; work centers; inquiry-based learning; teacher as coach or facilitator; experiential learning; individualized instruction; sustained writing or reading; independent, self-paced, individual assignments; and student discussion. Student-centered instructional practices focus on the student as an individual learner. These practices tend to gear the curriculum around student interest and require the students to be active learners engaged in the educational process. Jacobsen, Eggen, and Kauchak (1989) classify student-centered instructional practices into the following three categories: guided discovery, discussion, and inquiry.

For the purpose of this study, small class sizes are defined as 15 or fewer students in a class. Large classes are defined as more than 15 students in a class. This study is not a study of student-teacher ratio, but it is a study of actual class size.

Limitations

One inherent limitation of this study is reflexivity. Since the researcher interviewed and observed teachers who chose to teach in small class settings, it is likely

that they will be biased towards this setting. They are also likely to provide only positive feedback about the small classes and will be less likely to provide negative information. Triangulation between classroom observations and teacher interviews is an important method employed to minimize reflexivity.

It is also important to note that because this study is descriptive in nature, it seeks to investigate the teaching practices in small classes within a particular setting. This study is limited in its scope and range and is not generalizable to the general population.

One threat to internal validity is selection bias because the sampling of this study is purposive. It is important to identify teachers that teach small classes, and this study desires to describe the instructional practices small class teachers use in both first and third grade Academy classes. Another threat to internal validity is instrumentation; interview and observational data are potential areas of concern because they might reflect bias.

Reactivity is a threat to the external validity of the study because of the use of observations. It is important to note that observations were pre-scheduled. This was a limitation of this study because the teachers involved were aware of the event and may have altered their instructional practices. One way to account for reactivity within this study is to conduct observations over a lengthy time frame, therefore three observations of 30 minutes each over a several week period will be conducted. On the other hand, one inherent limitation of this study is the use of a single rater. The inclusion of more than

one observer would have allowed for the calculation of inter-rater reliability and thereby improved the validity and reliability of the observation data.

This study is limited to a specialized setting of the Academy program in one East Tennessee school district, and only two grade levels were included thereby limiting the sample. Other limitations were that the instruments were developed and administered by the researcher.

Delimitations

This study limited its scope to first and third grade Academy classrooms within the Cleveland City Schools district. Academy classes are located at each of the six elementary schools and are used to help improve achievement scores for at-risk students. Students are identified for these classes by teacher recommendation and standardized test scores. Students in the Academy program begin school a month earlier than the rest of the district, and class size is limited to 15 students. For the 2001-2002 and the 2002-2003 school years, kindergarten was the focus of the Academy process, but in the 2003-2004 school year the Academy program moved from kindergarten to first grade. Academy classes began a month earlier than traditional classes, and Academy teachers received intensive training for teaching special populations. For the purpose of this study, the researcher described the instructional practices Academy teachers used with their small classes for the 2003-2004 school year.

Significance of the Study

This study should help educators understand how class size influences instructional practices and teacher/student interactions. If small class size is an important and viable educational issue, it is important to understand how class size is best utilized to help the instructional process. It is naïve to think that reducing class size alone will have a positive impact on student achievement. Teachers, educators, and policymakers must be aware of the research that reveals the relationship of class size to achievement, and they need to be aware of how class size influences the instructional process.

This study provides an in-depth look at teacher interactions and instructional practices in small class settings. Previous research has suggested reasons such as individualization, fewer disciplinary issues, and increased opportunities for hands on activities as impetus for increased student achievement in small classes (Achilles, 1998; Halbach, Ehrle, Zahorik, & Molnar, 2001; Johnston, 1990; Word et al., 1990). Research, on the other hand, has failed to examine the relationships among class size, instructional activities, and achievement at various grade levels (Ehrenberg, Brewer, Gamoran, & Willms, 2001). In order to better understand how instructional practices influence student achievement in small classes, it is important to conduct research that examines instructional practices in small class size settings at different grade levels. David Grissmer (1999) underscored the need for research in this area when he identified the need to examine the specific processes used in classrooms in order to understand the effects of small classes.

Chapter 2

Review of the Literature

Introduction

Over the last century a debate has raged over whether class size reduction would benefit students. Do students in small classes have higher achievement scores than those in larger classes? Is the difference in achievement scores statistically and educationally significant? Are other factors such as teaching style and classroom environment contributing to successful small classes? Many educators agree that there is at least some benefit for students in small classes, but they disagree as to the reason and the significance of the relationship between class size and achievement.

There are two major perspectives on the effect of small classes on achievement. One group of researchers believes emphatically that small classes benefit students educationally and that school systems should implement a policy of class reduction to take advantage of that relationship. Another group believes that the benefits of small classes are minimal or negligible, and it would be cost prohibitive to implement class-size reduction.

Historical Synopsis of Research

Over the course of the last 25 years, one of the most hotly debated educational issues is class size. The modern debate over class size began as a result of the Glass and Smith (1978) meta-analyses of 77 studies spanning 70 years and 12 countries. In this study, Glass and Smith (1978) determined that student achievement increases as class size decreases, especially in the younger grades. Within the context of these studies, student achievement was defined as student performance on standardized achievement

tests and criterion-based tests of curricular objectives. Since Glass and Smith's seminal work, much research has been conducted in this area in order to determine what role class size should have in organizing schools, developing the curriculum, promoting effective teaching practices, and increasing student learning and achievement. Only 14 of the 77 studies reviewed were used in their final meta-analysis because Glass and Smith believed that the other 63 studies were not experimental in nature. The Glass and Smith study ignited the debate in the early eighties between proponents of class size reduction and those who believed that class size effects on student achievement were minimal and not a profitable enterprise.

Glass et al. (1982) classified the period of 1920 - 1940 as the "primitive experimental era" in class size research. Dr. Frederick Whitney and Gilbert S. Willey conducted the major investigation during this time. Using the New Stanford Achievement Test, they found that 80 percent of the comparisons between small and large classes favored the small class. They published their findings in the August edition of the 1932 issue of *School Executives Magazine*.

After World War II, interest in the subject of class size and achievement picked up again with what Glass classified as the "large group technology era." Simon Haskells of the Spastics Society of London found no significant difference between the mean of small class scores and the mean of large class scores in 1964. Other studies such as the Coleman study (1966), the Plowden Study (1967), and the Assessment of Education Study (1967) found class size to be a relatively unimportant factor in achievement (Glass et al., 1982).

Glass et al. (1982) categorized the 1970s and early 80s as the "individualization era;" and it is during this period in which they did their own meta-analysis. Over the last

two decades experimental and individual studies have dominated the research. Indiana and Tennessee conducted the two largest and most complete studies of the 1980s. They confirmed a negative relationship between class size and achievement. Project Prime Time, an Indiana study, and Project Star, a Tennessee study, are still the two most complete studies done on the subject of class size and achievement (Chase, Mueller, & Walden, 1986; Word et al., 1990).

Project STAR is by far the largest and most complete study done on the subject. Conducted between 1985 and 1989, it followed over 7000 students from kindergarten through third grade. Students and teachers were randomly assigned to small classes (13-17), regular classes (22-26), and regular classes with a full time aide. Frederick Mosteller (1996), a statistician at Harvard, referred to STAR as one of the greatest experiments in education in the United States.

Studies Favoring Small Classes

In 1978, Gene Glass and Mary Lee Smith published the results of their meta-analysis of 77 studies on class size and achievement spanning over 70 years and 12 countries. This study was the first major study to unequivocally proclaim the negative relationship between class size and achievement by nationally recognized researchers. This study found a strong relationship between class size and achievement, student achievement would increase ½ standard deviation if classes were reduced to fifteen students, and achievement would rise by nearly 1 standard deviation if classes were reduced to 5 students.

Only 14 of the 77 studies reviewed were used in their final meta-analysis because Glass and Smith believed that the other 63 studies were not well-designed experimental

studies. Glass et al. (1982) concluded that the major reason small classes provided better achievement scores was because teachers in those small classes supplemented the curriculum with hands on projects, games, and field trips. Glass's meta-analysis was reaffirmed in 1983 when Hedges and Stock conducted a reanalysis of Glass's findings through improved meta-analysis techniques. They found the same statistically significant relationship between small classes and achievement.

In 1980 Glass and Smith's meta-analysis study was criticized by the Educational Research Service (ERS) for including tutorial data and excluding data from studies that did not show a negative relationship between class size and achievement. This criticism will be addressed at further length later in this chapter. In response to that criticism, Glass et al. (1982) produced another meta-analysis that excluded classes under 5. They stated that ERS misconstrued the data and misquoted the researchers, and they noted that the ERS argument was a matter of semantics over what should be considered positive results. During the 1980s, Robert Slavin (1984) joined the debate and criticized the Glass-Smith meta-analysis. He concluded that reducing class size leads to at least minimal gains in achievement scores, but that the cost of reducing classes is too prohibitive to implement as policy. The debate among Glass, Slavin, and ERS over the benefits of class size and achievement set the stage for the Project Prime Time and the Project STAR studies during the 1980s.

While Project Prime Time and Project STAR are the most complete and highly regarded studies on this topic, several other studies were conducted during the individualization era (1970s and early 80s). William Moody determined in 1972 that there was a relationship between class size and mathematics achievement of 249 fourth grade pupils in a northern Delaware school district. Small classes of 1:1, 1:2, 1:5 showed

marked improvement over larger classes of 1:23.

One early experimental study conducted by Andrew Carrington in conjunction with the Virginia Beach City Public Schools grouped pupils into small classes of 21 and large classes into groups of 29. The California Achievement Test was given to students and the results showed that first grade small classes outperformed the large first grade classes in reading achievement (1981). It is important to note that the Virginia Beach City Public Schools defined small classes as 21or less while this study defines small classes as 15 or less. In a similar study conducted in South Carolina, benefits for small classes over large classes in both mathematics and reading were revealed. The overall achievement of first graders proved to be significant with a difference of $p < .05$ (Meredith, 1977).

Other studies showing the relationship between class size and achievement have been conducted since the individualization era. One such study by James Campbell (1990) tracked students from grade one through grade three; he then used the Canadian Test of Basic Skills Level 9 and found a strong negative relationship between class size and achievement.

In recent years, with Glass's as well as others' research setting the background, several researchers conducted studies to discover why small classes have an impact on student achievement. In a research study done in 1989, Douglas Mitchell found that the effect size as described by Glass et al. (1982) can be attributed to the four following possibilities:

(a) Increased class size leads to longer nonacademic routines.

(b) Larger classes take longer to make closure because of student interaction.

(c) The teacher in large classes focuses on the least able student in a class.

(d) The teacher is a fixed resource and is spread more as class size increases.

This concept of the teacher as fixed resource was reiterated when the Soviet Union wanted to determine the relationship between achievement and class size and how small class size influences achievement. In the late 1980s M.I. Zaikin (1990) conducted research in Soviet schools. He found that general instruction is geared to the statistical average, and that average is less diverse in a small class; therefore, instruction in small classes reaches more students. The organizational workload is lessened in the small class, and the teacher is more aware of each child's learning needs.

While many researchers tried to answer the why of class size effect on achievement, Karen Akerhielm (1993) searched for the answer to the problem of whether this class size effect is universal or only affects specific groups. She used the National Education Longitudinal Study and found that class size has a negative relationship to achievement in all socioeconomic class settings, even those in private schools. This effect size is relatively the same when one accounts for the distinctive selection of students in private schools. Along a similar vein, the Philadelphia Federal Reserve Bank conducted a study in 1975 and found that small, heterogeneous, racially balanced classes fared better on standard achievement tests than did larger classes. They also found that as students were grouped by similar ability a greater increase in achievement was observed. The STAR study also studied different socioeconomic groups and found that the effect size of small classes is universal (Word et al., 1990).

As stated previously, the two most complete and modern projects showing the correlation between small classes and achievement are Project Prime Time and Project STAR. Conducted in 1984, Project Prime Time revealed significant increases in students' reading and mathematics scores as well as their attitudes toward self and school (Chase, et al., 1986). On average, large classes consisted of 26 students and small classes

consisted of 19. The effects of achievement in relation to class size reduction were more prominent in first grade than in second and third grades (Chase, 1986; Sanogo, 1994). There was also little effect on achievement after three years in the program (Chase, Mueller, & Walden, 1986; Sanogo, 1994). When cumulative effects were studied, small classes showed a .34 effect size over the larger classes in reading achievement test scores (Chase et al., 1986). In support of Chase's work with Prime Time, McGiverin, Gilman, and Tillitski (1989) conducted a meta-analysis of 10 different studies totaling 24 comparisons of scores from the Prime Time project. They conducted their studies on small classes at the end of the second year of Prime Time, and found small classes to have a significantly higher level of achievement than larger classes at $p<.001$ level of confidence. The meta-analysis of the control group did not show any significant change in achievement (1989).

In order to compare Prime Time and STAR, one must understand that STAR was experimental in nature while Prime Time was not. Because of the apparent contradictions between STAR and Prime Time, Youssouf Sanogo conducted a study into the methodologies and results of these two studies. He found that the STAR methodology was no better than that of Prime Time and that STAR did not evidence either a Hawthorne or John Henry effect (1994). The John Henry effect occurs when participants achieve more when they are informed that they are in the control group for an experiment. They compensate in order to prove that the status quo is better. The Hawthorne effect is used to describe any situation where the participants' behavior is affected by their knowledge of participating in a study.

Project STAR was the first major longitudinal study conducted in the U.S. on class size effects. Over 7000 students in the state of Tennessee were involved, and the

study included 17 inner-city schools, 16 suburban schools, and 39 rural schools. Students and teachers were randomly assigned to either the control or the experimental groups. The class arrangements were maintained all day and year with no other interventions such as special training for teachers or curriculum (Finn, 2002). The students were given three major tests: the Stanford Achievement Test (K-3), STAR's Basic Skills First Criterion Test, and Tennessee's Basic Skills Criterion Test (grade 3) (Word et al., 1990). The benefits of STAR are most evident in the SAT reading effect sizes. Effect sizes were determined by subtracting the mean score in standard deviation units of regular and teacher-aide classes from the mean score for small classes (Finn, 1998). They are by grade order .21, .34, .26, and .24. First grade students achieved the greatest gains with effect sizes of .34 for reading and .33 for math, and the cumulative effects of Project Star continued through to the ninth grade (Nye, 2001). Like Prime Time, STAR saw the greatest gains in student achievement in first grade.

Besides the fact that an improvement in achievement was shown in STAR, there are many other things which can be learned. Inner-city schools saw the greatest achievement gains, and low socioeconomic groups benefited about the same as high socioeconomic groups (Folger, et al. 1989). It should also be noted that high socioeconomic (S.E.S.) groups out-performed lower S.E.S. groups, but the benefit for both groups was statistically nearly the same (Word et al., 1990). During Project STAR, small classes were able to take advantage of the following:

1. Quicker completion of basic instruction.
2. Use of supplemental text and enrichment activities.
3. More in-depth instruction regarding basic content.
4. More frequent opportunities for first-hand learning.
5. Increased use of learning centers.
6. Increased use of primary grade practices
7. Increased monitoring of student behavior.

8. Opportunities to re-teach or enrich.
9. More interaction time with each child
10. A better match between each child's ability and instructional opportunities.
11. A more detailed knowledge of each child as a learner
12. Time to use a variety of instructional approaches. (Word et al., 1990)

Fewer students were also held back a grade; minority students benefited the most; there were fewer discipline problems, and students were more likely to participate in activities (Achilles, 1998).

Using teacher interview data collected from the STAR project, John Johnston (1990) explored the teachers' perceptions of teaching in different sized classes and reiterated similar findings to that of Word et al. (1990). He found that teachers in small classes said they were more likely to utilize individualized instruction, increase the amount and pace of material covered, use learning centers, monitor students' work more closely, provide immediate feedback to students, furnish enrichment activities, use whole class discussions, re-teach and review more often, include higher-level thinking assignments, and they experienced fewer discipline problems and interruptions.

The most effective teachers in STAR classes practiced Lee Canter's assertive discipline, and they utilized acting, demonstrating, and role playing activities. They engaged their students through creative writing, hands-on experiences, learning centers, and math manipulatives. The most effective teachers observed were in small classes. Careful consideration was also given to see that the standard curriculum was used by all classes (Word et al., 1990).

Project STAR attempted to be the most complete and beneficial study of its type on class size and achievement. It carefully constructed learning scenarios, and through the Lasting Benefits Studies it continued to track the students assigned to the experimental group throughout their schooling experience. The Lasting Benefits Study

(LBS) provided invaluable research for understanding the long-term benefits of small class sizes in the early grades. The LBS was a six year follow-up of the participants of STAR, and it tracked their progress through ninth grade (Achilles & Others, 1993; Nye, 2001; Pate-Bain, Boyd-Zaharias, Cain, Word, & Binkley, 1997). The LBS found that students who participated in a small class in at least one grade during kindergarten through third grade -3 showed higher achievement each year through grade nine. The reasons for these long-term effects were unclear, but the researchers hypothesized that students benefit from individualized instruction in small classes and that other forms of instruction are more effective when presented in the small class. These early interventions were by-products of the small class size, and they appeared to influence student achievement throughout their education (Nye).

Project STAR evidenced the correlation between class size and achievement. All in all, this research "shows the substantial positive benefits of early, small-class experiences for student achievement and development... and leaves no doubt that small classes have an advantage over larger classes in reading and mathematics in early primary grades" (Achilles, 1998).

Another study conducted by Stacey Farber and Jeremy Finn (2000) using STAR data showed students in the STAR small classes exhibited more enthusiasm and effort and spent more time engaged in active learning. In this study, Farber and Finn claimed small-class teachers attend more to student needs, provide individualized instruction, engage in less discipline, and provide more active learning tasks. These factors lead to a higher student engagement rate. However, this effect was not carried over into subsequent years after the students left small classes. They attributed this lack of carryover to the phenomenon of development of self-regulating competence. Students

perform to the level of class norms, and the effects observed in small classes were not internalized and transferred to different settings.

In 1990, the state of Tennessee initiated a policy called Project Challenge. Seventeen school districts, participating in the STAR project, reduced class size (1:15) in K-3 classes. These school districts were chosen because they performed below average on the statewide achievement test. Project Challenge was not an experimental design and did not randomly assign students to classes or provide for special testing. These threats to validity must be noted before assuming any generalizability of the study (Nye et al., 1992). Project Challenge found that math and reading scores improved for students in the small classes, and, in actuality, the seventeen school districts improved scores in these areas beyond the state average by 1993. The results displayed by Project Challenge mirrored those of Project STAR, but the results of both Project Challenge and the Lasting Benefits Study were not as great as were those of the experimentally designed STAR Project (Achilles, 1998; Nye et al.).

STAR received additional research support when two other researchers, Harvard professor Frederick Mosteller (1996) and Princeton economist Alan Krueger (1997), reevaluated STAR's results, and both came to the conclusion that STAR conclusively showed that reducing class sizes significantly increases student achievement. Krueger suggested that the results of STAR should be used by policymakers when determining class size. He also suggested that similar effects can be seen in class sizes as small as 22-25, and that reducing class size is feasible economically and productive educationally.

In the years following the STAR study, other states began class size reduction initiatives. Wisconsin, North Carolina, Nevada, and Texas plunged into the class size reduction controversy with research of their own. Using a quasi-experimental design,

Wisconsin's class size reduction experiment, Student Achievement Guarantee in Education (SAGE), revealed significant differences ($p<.05$) between pre-test and post-test scores on all tests for first grade students. The regression analyses performed showed a consistently positive, statistically significant effect on student scores on the California Test of Basic Skills (CTBS). Similar results were shown for second grade, and African-Americans saw the greatest increase in scores (Molnar et al., 2000).

In North Carolina, an experiment in reducing class size was carried on in Burke County. Burke County reduced class size (1:15) in four of the fourteen elementary schools, grades one to three. The other ten were the control group with average class sizes of 1:25. Students in the small classes performed higher on standardized tests than those in the control group. This study also noted a perceived improvement in classroom management, student self-concept and relationship to peers, and improved teacher-parent communication (Egelson et al., 1996; Harman & Egelson, 1998).

Two other states, Nevada and Texas, conducted research about the effectiveness of small class sizes and found that generally smaller class sizes do improve student achievement but the differences are not statistically significant (Sturm, 1997; Texas Education Agency, 1999). Results from both studies were mixed and not conclusive. It is important to note that neither of these studies was experimental in nature, and they defined class size by student-teacher ratio and not actual class size.

Studies Not Favoring Small Classes

After Glass and Smith (1978) released their first meta-analysis of class size and achievement, the debate over whether or not their results were significant became heated. The Educational Research Service (ERS) listed five major criticisms of their work. First,

the method Glass and Smith used did not take into account meaningful clues in class size research. Second, the findings relied on too few studies, and Glass and Smith implemented the methodology inconsistently. Third, the findings were contradictory at times. Fourth, general class reductions could not be made from the research because the conclusions were confusing. Fifth, more research was needed to confirm these over-generalized findings, and the bold generalizations Glass made did not promote further research. While Glass and Smith's research was criticized mostly for its over-generalizations, ERS did concede the fact that small classes showed a general improvement of achievement scores. They claimed, however, that this improvement was minimal and did not warrant the cost of reducing class size as a solution to education's problems (ERS, 1980).

Over the next few years the debate between Glass and Smith and ERS raged. Eventually Robert Slavin emerged as the standard bearer for the ERS position. Slavin (1984) claimed that the preponderance of Glass and Smith's research was based on tutorial types of settings and, therefore, invalid when used as a basis for adjusting the standard classroom. He also stated that ERS and his own research proved that small classes are effective at the early primary levels, but those effect sizes are small at only +.13.

One of the major proofs used by Slavin (1990) was the research done in other countries especially Japan,where Japanese students out-perform other students even though they are generally in larger classes. Ito Atsushi (1990), a Japanese researcher, explained the reasons for this phenomenon. He compared 211 Japanese classes to 59 Korean classes. Sizes ranged from 20-49 in the Japanese classes and from 11-62 in the Korean classes. He found that on the whole Japanese schools are teacher-centered, and

small classes only perform better when the teaching style is student-centered. Researchers pointed to his conclusions and claimed that small classes are not the answer as much as teaching style was.

In this same vein, an experimental study conducted in Sri Lanka also demonstrated no overall effects of class size on achievement. Statistically, there were significant differences between class sizes in achievement test results, but those differences followed no set pattern (Dharmadasa, 1995).

It is important to note that a 1997 study conducted by Wright, Horn, and Sanders concurred with these conclusions when it found that, "the two most important factors impacting student gain are differences in classroom teacher effectiveness and the prior achievement level of the student" (p. 63). This study showed class size was statistically insignificant in regard to achievement gain.

Tommy Tomlinson in his paper, "Class Size and Public Policy: Politics and Panaceas," pointed out that on the average, achievement test scores have declined as class size has declined in America over the past four decades (1988). He and other critics stated that the effect size on student achievement test scores is too small for classes over twenty, and it is not until classes are reduced below this level that any substantial benefits are seen. The decrease in class size to this level would be cost prohibitive. Tomlinson, using 1986 figures, projected that in order to reduce classes to effective size as claimed by Glass and Smith (1978), 335,000 teachers would need to be hired at an additional cost of over $22 billion (1988). Slavin (1990) claimed that four less costly alternatives exist: hiring subject matter specialists, one to one professional tutoring, peer tutoring, and cooperative learning.

When Project Prime Time and Project STAR emerged, researchers turned

attention to these studies. David Gilman and Christopher Tillitski (1990) found that Prime Time showed little achievement effect by the end of the third grade. They suggested that the long-term effects of Prime Time were inconsequential because it was not well conceived and was poorly designed. They also noted that the major benefit of this study tended to be for minority and poor students. Teachers in reduced classes did not substantially change their teaching techniques in order to maximize the effects; and that peer tutoring, computer assisted instruction, and increased instructional time were all more effective than class reduction (1990).

In his criticism of Project STAR, Mitchell (1989) pointed out that the study did not show that homogeneity was a reason for greater class achievement. The impact of class size on achievement is the direct result of differences in the pattern of student achievement and not the direct effect of reduced class size (1989). It is attention to these other details that need to be emphasized along with class reduction. Eric Hanushek (1999), University of Rochester Economist, also disagreed with the generalizability of Project STAR. After reevaluating Frederick Mosteller's study, Hanushek stated that the benefits of reducing classes to the level of the STAR study would be cost prohibitive.

In another study, Caroline Hoxby (2000) emphasized a statistically insignificant relationship between class size and achievement. She used the idiosyncratic variance in the natural population of 649 elementary schools to come to the conclusion that reducing class size was not a significant factor in increasing student achievement. She identified the random variation in the population for a grade in school, and showed statistically that reductions in class size had no effect on student achievement.

Kirk Johnson (2000) also conducted a study that showed no significant relationship between class size and achievement. Using the 1998 National Assessment of

Educational Progress (NAEP) reading examination to analyze the effect of class size on achievement, he found that children in small classes (classes fewer than 20) did not perform any better than students in larger classes (classes with 31 or more students). But, it is important to note that both of these studies were ex post facto studies and not experimental in nature.

A study conducted in Australia explored the correlation between instructional practices in small classes and student achievement. It found that the effect is significant when combining all the instructional variables. No variable was significant when viewed alone, but the small class allowed all of these variables to come together and strengthen student achievement (Bourke, 1986). The following were the instructional practice variables studied: class grouping, frequency and type of student/teacher interactions, teacher questioning behavior, homework practices, and noise levels. This study determined that small class teachers assigned more homework, used more whole class teaching, experienced fewer teacher/student interactions, asked more probing questions and allowed for more wait time; small classes were also less noisy. The study did not find student engagement rate or individualization, as described by Glass et al. (1982), to be of consequence, but it did find that teachers attended more closely to students through questioning techniques (Bourke, 1986).

Summary

Overall, the literature, which examines class size and achievement that does not claim a statistically significant advantage, concedes the fact that there is some benefit to small classes. Only a few research studies, showing no relationship between class size and achievement, are experimental in nature, and there are no studies that are on the scale

of Project STAR or the other state studies previously cited. Many of these research studies find the benefits of reduced class size coming from changed teaching styles more than the phenomenon of solely reduced class size (Atsushi, 1990; ERS, 1980; Mitchell, Carson, & Badarak, 1989; Slavin, 1990). Many researchers believe that the benefits of reduced class size do not outweigh the fiscal burdens, or that they should supersede less expensive educational alternatives (Hanushek, 1999; Slavin, 1984, 1990).

Instructional Practices in Small Classes

While much of the research about class size reduction has focused on the impact small classes have on achievement test scores, in recent years much attention has been paid to understanding the factors that influence this phenomenon. As stated previously, much of the research decrying the class size reduction movement claimed teacher effectiveness was more responsible for achievement test score improvement than actual class size reduction. While this is a possibility, this very belief raises the possibility that class size reduction may affect instructional practices and style. Recently, research has focused on the instructional practices of small class teachers as one factor influencing increased student achievement of reduced-sized classes.

A number of studies have revealed that teachers teach differently to classes of differing sizes (Evertson & Folger, 1989, Hargreaves, Galton, & Pell, 1997; Molnar, Smith, Zahorik, Palmer, Halbach, & Ehrle, 1999). Teachers of small classes utilize individualized instruction and active learning activities, and this helps lead to increased student engagement (Blatchford & Martin, 1998; Farber & Finn, 2000). One example of this phenomenon was a study conducted in England that found that teachers teach differently to small and large classes. Teachers taught similar lessons to both groups. The

teacher challenged students in small classes more frequently, and teachers attended to students for longer periods (Hargreaves et al., 1997).

A study in North Carolina conducted by Harman, Egelson, Hood, and O'Connell (2002) examined the impact of small class size on student achievement and instructional practices. This study utilized three observation instruments for data collection. These observation instruments focused on instructional practices and teacher-student interactions. The study found that direct instruction was the most common instructional practice observed, there was an increase in student-teacher interactions in the form of teacher as coach and instructional feedback, and smaller classrooms promote a relaxed, safe atmosphere that led to increased instructional time and monitoring of student progress. This finding supports other research that reveals small classes help personalize instruction and improve student achievement by creating strong relationships between teachers and students (Kaplan & Owings, 2000).

Marilyn Korostoff (1999) conducted a qualitative study using participant observations and structured interviews in California reduced-sized language arts classrooms and found similar results to those of Harman, Egelson, Hood, and O'Connell (2002). She determined that small class teachers, regardless of experience or training, predominately utilized whole class instruction, small group instruction was infrequent, and very little one on one instruction was evident. She noted that instructional strategies were mostly teacher-centered. In contrast to the observational data, the interviews revealed that teachers perceived that they used a variety of instructional strategies. Some did note, however, that they used the same types of practices that they would in larger classes, but they seemed to work better in small classes.

A qualitative study conducted by Karin Fallon at the Brass Apple Military

Academy examined the impact of intensive education on student success and teacher satisfaction. While this study did not specifically examine the issues of class size, it did examine class size reduction as part of the overall effect of intensive education. Fallon (1995) found that reducing class size helped increase student-teacher interactions, promoted a diversity of teaching methods and learning activities, allowed for a deeper involvement in the subject matter, and allowed teachers to more easily identify students who needed extra help. Reducing class size also helped reduce the teacher load so that the teacher could focus more intently on the needs of the students as individuals.

Two other studies conducted by Rice (1999) and Betts and Shkolnik (1999) explored instructional practices in different class size settings. Rice (1999), using data from the National Educational Longitudinal Study, found large classes focus more on instructional time, managing behavior, and nonacademic routines. She also noted that small classes are more likely to utilize small groups, whole group discussion, and employ innovative instructional practices. However, she did not define what is meant by innovative instructional practices. She also explained that the effects of class size were greater for math than science classes. Betts and Shkolnik found similar results using data collected from Longitudinal Study of American Youth (LSAY). They discovered small classes were more likely to finish material more quickly than large classes and employ review activities more frequently. They identified that teachers of small classes used more individualized instruction, spent less time dealing with discipline issues, and class size had a greater impact on instructional practices at the middle school level than at the high school level.

Many advocates of the constructivist philosophy of education point to small classes as key to the success of this approach. According to the resource book, *Teaching*

for Success: Strengthening Child-Centered Classrooms, small classes promote a constructivist approach to education by promoting individualization, creativity, small-group activity, and interpersonal relationships. Small classes help facilitate these constructivist principles, but they must be a planned part of the curriculum and instruction (Fredenburg, 1995).

Alfie Kohn (1999) in his book, *The Schools Our Children Deserve*, noted that more research is needed in regard to understanding how small classes affect the learning environment. He states, "The best research does indeed tend to find, with certain qualifications, that kids learn better in significantly smaller classes. But less attention has been paid to an indisputable proposition: students are more likely to be heard, to really know their classmates, to come to think in the plural, when there are fewer people in the room" (p. 156).

John Zahorik (1999) in his article, "Reducing Class Size Leads to Individualized Instruction," notes that the Student Achievement Guarantee in Education (SAGE) program in Wisconsin has revealed that students are more likely to receive individual attention in small classes. Research using data from teacher logs, questionnaires, interviews, and classroom observation revealed small classes realize fewer discipline problems, increased knowledge of students as individuals, and more teacher enthusiasm. These three effects all contribute to an increase in individualization. Teachers are able to recognize student needs more quickly, and small classes develop a caring, family-like environment. Zahorik claimed some increase in hands-on activities, interest centers, and cooperative groups as well. The study found that individualization takes the form of instruction more than content. Teachers are likely to provide more examples, demonstrations, and other tasks in small classes. While individualization appeared to be

an outcome of small classes, this study found teachers of small classes are still more likely to use direct instruction than alternative methods.

Another research study conducted on the SAGE program to determine teaching practices revealed the following three factors that determine teacher effectiveness: instructional orientation, management style, and individualization focus (Zahorik, Halbach, Ehrle, & Molnar, 2003). According to this study, most teachers of higher-achieving classes used direct instruction techniques, allocated more time to foundational academic goals while giving less time to personal and social goals, and incorporated experiential learning opportunities only after students acquired basic knowledge and skills. The more effective teachers planned lessons with clear goals and carefully planned activities. They minimized disturbances in classrooms, and exhibited energy and enthusiasm. Finally, effective teachers emphasized individualization strategies more often than did less effective teachers. In summary, this study purports that individualization is the ultimate goal of class reduction, and effective teachers emphasize basic knowledge, explicit instruction, and well-planned and organized lessons.

One reason small classes successfully promote higher achievement is that they nurture a caring community environment where the students can voice their opinions with confidence, and small classes create an environment where students are more likely to be heard and participate in the group process of learning. The following benefits of the small class can be intrinsically linked to child-centered curricular objectives because in the small class students are more likely to:

1. think more creatively and divergently
2. develop more positive attitudes, perceptions, and human relationships
3. function more effectively as members and leaders of groups
4. demonstrate less aggressive behavior such as fighting
5. have fewer fears of being ridiculed and bullied

6. participate promptly, eagerly, and enthusiastically (Hertling et al., 2000)

Students in small classes develop deeper relationships with one another as well as with their teachers and therefore display positive self-esteem and enthusiasm for learning (Chase et al., 1986; Egelson et al., 1996; Harman & Egelson, 1998). While it is important to note that small classes affect student perceptions, many of these positive outcomes are evidenced by teachers as well (Veal & Flinders, 2001).

The concept of small classes creating nurturing environments that promote positive social behavior was further espoused in the article, "The Why's of Class Size: Student Behavior in the Small Classes" by Jeremy Finn, Gina Pannozzo, and Charles Achilles (2003). This article synthesizes class size research and draws conclusions that students are more engaged in small classes. The authors explain this phenomenon in terms of social theory and hypothesize that small classes promote the "visibility of the individual" and create a "sense of belonging." The authors claim that social theory purports that "visibility of students" leads to a diffusion of responsibility and reduces social loafing that is more likely to occur in larger settings. The "sense of belonging" small classes create applies to both students and teachers and creates group cohesiveness and a sense of community.

Conclusion of General Findings

The preponderance of literature supports at least a minimal advantage to class reduction in the early primary grades. Project Prime Time, Project STAR, the Burke County Experiment, and SAGE show that in the early grades there is a significant effect on increasing academic achievement when reducing class size. Both the Prime Time and STAR studies' effect sizes in first grade double the effect size as claimed by Slavin (1990) in his research. Prime Time's effects do not seem to be cumulative and the effect

wears off by the middle elementary years. STAR research shows that effect of small class instruction in the early grades is cumulative and benefits students even through the ninth grade (Chase et al., 1986; Nye, 2001; Word et al. 1990).

The research of this subject must be examined closely. Most of the differences between small class size advocates and those researchers who do not see a significant advantage to small classes are semantic. Most agree that there is a benefit but do not agree as to why and how effective it is.

While most research data agree that small classes promote student achievement, there is no general consensus as to what causes the increase (Finn, 1998). Some research shows that effective teaching practices are magnified in small classes making them even more effective (Achilles, 1999; Bohrnstedt & Stecher, 1999; Bourke, 1986). While teaching practices may vary, it is the smallness of a class that gives it the impetus to promote student achievement (McRobbie, Finn, & Harman, 1998).

Overall though, teachers who teach small classes report that they are able to cover material more quickly with fewer classroom management types of interruptions, and they are able to enrich the subject matter with additional materials and activities. Small classes also promote in-depth teaching, the use of concrete materials for engagement of authentic learning, and more individualized instruction. Teachers are able to better evaluate each child's learning, and the curriculum takes on a richer deeper aspect (Bain, Achilles, Zaharias, McKenna, 1992; Hertling, Leonard, Lumsden, & Smith, 2000). One study that dealt with the effects of block scheduling on classroom practices bolsters this assertion. It determined that lecture and worksheets dominate large classes while small classes utilized a wider variety of instructional practices (Veal & Flinders, 2001).

The STAR study is the most complete and well-conceived study on the issue of class size

and achievement. It is the best example showing the immediate and lasting benefits of reducing class size in the primary grades. No other study supporting or rejecting the impact of class size on achievement examines this issue in depth as does STAR. It is with this in mind, that the STAR results should be the focus and main consideration for any future research.

Chapter 3

Methodology

Type of Design

Because this study desires to explore teaching practices and methodologies in small classes, this study employed a descriptive, collective case study design (Merriam, 1988; Stake, 1992). The study should be used as a springboard for further research in exploring the effects of class size on instructional methodologies and student/ teacher interactions. The following three research questions were the basis of this study:

1. What instructional practices do Academy teachers employ in their small classes?
2. What differences and similarities in instructional practices exist between first and third grade Academy classes?
3. What changes in their instructional practices do Academy teachers perceive as a result of teaching small classes?

Composition of Sample

Over the course of the last 20 years, many studies such as Glass and Smith (1978), Word et al. (1990), and Nye et al. (1992) have supported the connection between class size and student achievement. While some studies such as Betts and Shkolnik (1999), Johnston (1990), and Rice (1999) have inquired into differences in instructional practices between large and small classes, there is relatively little research exploring instructional methodology of small classes. Ehrenberg, Brewer, Gamoran, and Willms

(2001) in their article, "Does Class Size Matter," call for studies that will give greater insight into the relationship between class size and instructional activities at various grade levels. Therefore, a need exists in the current research for a case study design to further describe the instructional methodologies of teachers of small classes at different grade levels. A study of the Academy Program in Cleveland, Tennessee provided a perfect opportunity.

It was the intent of this study to expand the theoretical base and understanding of this subject. In regard to this, Merriam (1988) describes the qualitative case study design as an avenue for exploration and unfolding of a situation to better understand the phenomenon involved. Teachers who teach small classes need to be cognizant of their instructional methodologies in order to be effective teachers. With a better understanding of this theoretical base, further research can focus on how teachers can best teach small classes.

In order to conduct this study, the researcher identified a suitable population of small classes. The researcher studied instructional practices in small ($\leq$15) first and third grade Academy classes in the Cleveland City school district in East Tennessee. These Academy classes are aimed at improving student achievement for at-risk students. In 2001, the Cleveland City school district instituted Academy classes at each of its elementary schools to help low achieving or at-risk kindergarten students excel. The following year they expanded these Academy classes to include third grade. For the 2003-2004 school year, Cleveland replaced the kindergarten Academy with first grade

Academies. Academy classes are unique from traditional classes in that the school year begins three weeks earlier and each of the Academy classes is limited to 15 students. Since the purpose of this study is to describe the instructional practices in small class settings, research will be limited in scope to the Academy classroom teachers.

In order to conduct this study, the researcher contacted the superintendent of this school system and gained his permission to study the instructional practices of the Academy teachers (see Appendix A). Because of the nature of the study, the researcher employed a purposive sampling of only Academy teachers in the six elementary schools identified. The six elementary schools that house the Academy classes serve a varied makeup of students from diverse ethnic and socioeconomic backgrounds (see Table 3.1). This sample was limited in scope to only reduced-sized classrooms. Overall, there were ten teachers involved in this study, five first grade Academy teachers and five third grade Academy teachers.

Data Collection Procedures

Data about Academy teachers' instructional practices were collected in two ways. The researcher collected observational data by conducting three 30-minute observations of each Academy teacher. Once the observations were completed, a partially structured, taped interview with each teacher was conducted.

Acting as a non-participant observer, the researcher collected observational data using the Academy Observation Scripting Form (see Appendix B), developed for this

Table 3.1: Demographic Breakdown of Cleveland City Elementary Schools.

Demographic	Arnold	Blythe Bower	Yates	Ross	Stuart	Mayfield
Students	295	492	416	409	410	316
Economically Disadvantaged	77.2%	97.2%	25.7%	30.9%	42.5%	63.5%
White	60.3%	73.2%	77.9%	85.1%	87.6%	69.9%
African American	33.6%	19.7%	11.5%	9.8%	6.6%	13.6%
Hispanic	6.1%	4.9%	6.0%	3.2%	2.7%	13.9%
Asian	0%	2.0%	4.3%	1.7%	2.7%	2.2%
Native American	0%	0%	0.2%	0.2%	0.5%	0.3%
Pacific Islander	0%	0.2%	0%	0%	0%	0%

study, and then translated the raw data from each scripting form to an Academy Class Observation Summary Form (see Appendix C). This summary form was created in order to record the duration of each of the following common teacher practices as evidenced in the small classes and noted in the review of literature: direct instruction, independent seatwork, drill and practice, teacher led question and answer, individual tutoring, cooperative/collaborative learning groups, and use of inquiry-based learning. Along with recording the duration of these teacher practices, duration of five instructional strategies was evaluated on the following Likert scale: 5 = extensively, 4 = frequently, 3 = occasionally, 2 = rarely, and 1 = not observed.

The five instructional strategies evaluated were integration of manipulatives, use of learning centers, differentiated instruction, teacher promotion of student engagement, and teacher makes individual contact with students. The instructional strategies were developed through the review of literature. They are broad categories of instructional organization and teacher influence on learning. Each of these teacher practices and strategies were given operational definitions and guidelines. The procedure for their observation is noted in the Academy Class Observational Administration Manual (Appendix D). This manual was created by the researcher to outline the steps and methods for classroom observation. It is also important to note that each Academy teacher agreed to participate in this study and signed an informed consent statement before the collection of data (see Appendix E).

The purpose of the scripting form was to record the start and end times of each instructional practice and describe each teacher action in detail so that information could be translated to the summary form. Using the information from the scripting form, the observer tabulated the duration of each teacher practice and recorded it on the summary form. One summary form was completed for each observation. Once that form was completed, the researcher used the data collected with the scripting form to make evaluative judgments about each instructional strategy and rank the teacher's use of each using the Likert scale.

Since three 30-minute observations of each Academy were conducted, purposive scheduling for these observations was important to the reliability of the study. Each

classroom was observed at three different times of day in order to give a holistic overview of the teacher's instruction. These observations of 30 minutes each were conducted in the early morning, late morning, and early afternoon, and they were conducted over several weeks in January, February, and March. These observations were scheduled during mid-year because research indicates that observational studies conducted over short periods should be conducted in the middle of the school year instead of at the beginning or end in order to avoid biasing effects that might distort observational data (Evertson & Veldman, 1981).

Research suggests that increasing the length and number of observation periods increases reliability (Cooley & Mau, 1980; Rowley, 1978; Tobin & Capie, 1981). For example, Rowley found in his research that conducting three 10-minute observations realized a reliability factor of .391. Increasing to six 10-minute observations lead to a reliability factor of .562, but conducting three 30-minute observations improved reliability to .589. With this in mind, this researcher detemined three observations of 30 minutes each to be appropriate.

Along with observational data, the researcher used a partially structured interview (see Appendix F) in order to allow teachers to reflect upon the specific practices they employ and explain in greater depth their experiences as teachers of small classes. The interview was created for this study and sought to probe for greater understanding and insight into the instructional practices of the Academy teachers. Interview questions two, six, seven, nine, and 12 provided data to address research questions one and two. The

interviews also sought to expose Academy teachers' perceptions of how teaching small classes has changed their instructional practices. Specifically, interview questions four, seven, nine, 10, 11, and 12 sought to explore Academy teachers' perceived changes in their instructional practices. Once the data were collected, they were analyzed to determine trends and patterns and summarize the instructional practices Academy teachers use in both first and third grades. The interviews also provided a window into Academy teachers' perceptions of changes in their instructional practices. Each participant is described in Appendix G, and pseudonyms have been assigned to each participant in order to ensure confidentiality.

Data Analysis Procedures

This study relied on triangulation of the observational data and the interview data in order to promote reliability and validity of the study because triangulation helps to ensure credibility, dependability, and confirmability (Lincoln & Guba, 1985). Triangulation of observational data and interview data answered the following research questions:

1. **What instructional practices do teachers in this study employ in their small classes?**
2. **What differences and similarities in instructional practices exist between first and third grade Academy classes?**

Since the two methods of data collection were interviews and observation, an accounting for the validity of both of these sources is necessary. In regard to the

interviews, one method ensuring validity was the use of verbatim accounts in the analysis. Transcribing the tape-recorded interviews was an essential part of maintaining accuracy and trustworthiness and was an integral part of data analysis. The researcher used direct quotations from the participants of this study in order to support validity and reliability of the perspectives attributed to them. Low-inference descriptors are an essential part of this study. Details provided by the interviews were carefully and precisely recorded. Details and thick, rich descriptions (Geertz, 1973) of the cases involved as well as the use of verbatim quotes and detailed accounts support dependability and credibility. According to Merriam (1998), validity and reliability are strengthened by outlining the assumptions of the study and providing an audit trail. This study relied on these techniques along with triangulation and member checks.

In order to understand the interview data collected, it was imperative to arrange the data in an understandable fashion. Using the constant-comparative method as described by Glaser and Strauss (1967), the interview data were coded, relationships within the data identified, and any patterns noted in order to categorize the data. The coded data and categories identified common themes that were repeated throughout the collected data and the review of literature. In order to address research questions one and two, the interview data were coded according to instructional practice as identified by the Academy Observation Summary Form.

Validity of observational data was strengthened by triangulating the data recorded during the observations with the coded interview data to determine similarities and

differences between the instructional practices teachers reported and what was observed. Detailed observation notes and recorded durations of exact instructional practices along with the coded interview data enhanced the validity of the study and helped reduce bias (Gay & Airasian, 2000).

The data recorded on the Academy Class Observation Summary Forms were tabulated in order to reveal the average duration of each teacher practice as well as the mean score for each instructional strategy. In order to determine means for instructional strategies that were based on Likert data, the researcher made the decision to treat instructional strategies as interval data. Means were calculated for each of the following three categories: all Academy teachers, first grade Academy teachers, and third grade Academy teachers in order to facilitate comparison between first and third grade Academy teachers and summarize the instructional practices of Academy teachers as a whole.

Using Microsoft Excel, means and standard deviations for each teacher practice and instructional strategy were calculated. Durations for each teacher practice and the Likert score for each instructional strategy were inputted from all 15 first grade observations and all 15 third grade observations. A mean was calculated for each teacher practice and each instructional strategy across first grade teachers, third grade teachers, and all Academy teachers. Once these means were determined, t-tests of significance were conducted to determine any significant difference between first and third grade Academy teachers. An alpha of .05 was established to determine significance.

In order to address research questions one and two, the researcher employed synthesized observational data and interview data in order to determine common themes across the data sources. This process created summaries of instructional practices of the Academy teachers overall, and surfaced differences and similarities between first and third grade Academy teachers.

In order to understand how Academy teachers perceived changes in their instructional practices based on class size, this study introduced research question three: **What changes in their instructional practices do Academy teachers perceive as a result of teaching small classes?** Only interview data provided a response to this question. Data from interview questions four, seven, nine, 10, 11, and 12 were coded and common themes were identified. Using the constant-comparative method, these themes were identified from terms and concepts that were repeated across the interviews. This method of theme identification is described by Merriam (1998) in *Qualitative Research and Case Study Applications in Education*. In order to affirm validity and objectivity, a member check was employed in regard to the findings dealing with research question three.

Methods of Verification

As previously mentioned, the researcher relied on triangulation of results from the data collection methods in order to answer research questions one and two. Triangulation helps to ensure credibility and dependability of the study (Lincoln & Guba, 1985).

Synthesis of classroom observational data with the coded, partially structured interview data helped to determine objectively trends and patterns, and to confirm them (Merriam, 1998).

In regard to research question three, the internal validity and objectivity of the researcher's interpretation of the teacher interviews was affirmed by employing a member check (Lincoln & Guba, 1985). Once the themes of the teachers' perceptions were determined, the Academy teachers were asked for their reactions. They were asked if they agreed or disagreed with the general conclusions for research question three. Together with these member checks, the researcher's prolonged engagement in the field and the creation of an audit trail through transcribed interviews also helped to bolster internal validity.

One of the most important methods of determining trustworthiness of the results of this study was the use of verbatim accounts of the interview responses in the analysis. When responding to all three research questions, the use of actual quotations from the participants of this study from the interviews strengthens the validity. Transcriptions of the tape-recorded interviews were an essential part of maintaining accuracy and trustworthiness by providing for low-inference descriptors that carefully and precisely recorded the details of the people and places involved in this study, and they also provide thick, rich descriptions (Geertz, 1973) of the cases.

Chapter 4

Findings

Three research questions guided the direction of this study. In order to address these research questions, data were collected by means of partially structured interviews and classroom observations. The collected data were analyzed and processed as described in chapter 3 to answer these research questions.

Question One

What instructional practices do Academy teachers employ in their small classes?

Using data from classroom observations and partially structured interviews, the instructional practices of the Academy were determined. Three 30-minute observations were conducted in all 10 Academy classrooms for a total of 30 observations, and the duration in minutes for each of the seven teacher practices observed was recorded. The total duration was calculated for each teacher practice, and the mean duration of each teacher practice was determined by dividing the total number of minutes for a given practice by the number of total observations. The standard deviation for the entire population was calculated. For a summary of the mean and standard deviation of each teacher practice see Table 4.1. The observation tool categorized teacher practices as direct instruction, independent seatwork, drill and practice, question and answer, individual tutoring, cooperative learning, and inquiry-based strategies.

Table 4.1 Academy Observation Data of Teacher Practices.
Means and Standard Deviations per teacher per observation.

	1st Grade Means	1st Grade Standard Deviations	3rd Grade Means	3rd Grade Standard Deviations	Academy Means	Academy Standard Deviations
Direct Instruction	16.13	6.25	14.67	9.71	15.40	8.20
Independent Seatwork	12.93	10.68	11.47	11.08	12.20	10.91
Drill and Practice	1.20	1.83	0.00	0.00	0.60	1.43
Question and Answer	6.40	6.32	3.93	4.77	5.17	5.73
Individual Tutoring	0.00	0.00	0.93	3.49	0.47	2.51
Cooperative Learning	0.40	1.50	0.27	1.00	0.33	1.27
Inquiry Based	0.00	--	0.00	--	0.00	--

On average, Academy teachers spent the most time on direct instruction with a mean duration of 15.4 minutes followed by independent seatwork with a mean duration of 12.2 minutes and question and answer with a mean of 5.17 minutes. The strategies they were least likely to use were drill and practice, individual tutoring, cooperative learning, and inquiry-based methods. Academy teachers spent on average less than one minute each using drill and practice, individual tutoring, and cooperative learning. Academy teachers were never observed conducting any inquiry-based methods.

The researcher also identified and summarized the following five broad categories of teacher instruction as instructional strategies: integration of manipulatives, the use of work/learning centers, teacher use of differentiated instruction, teacher promotion of student engagement, and teacher contact with individual students. Using data gathered with the Academy Observation Scripting Form (Appendix B) as the basis of judgment, instructional strategies for each observation were ranked on the Academy Observation Summary Form (Appendix C) using the following Likert scale: 5 = extensively, 4 = frequently, 3 = occasionally, 2 = rarely, and 1 = not observed. The mean scores and standard deviations for these ranked strategies are shown in Table 4.2.

The mean scores for the teacher practices revealed the average time an Academy teacher spent on a given practice during a 30-minute observation. The mean scores for the instructional strategies revealed the level of use of an instructional process used by an Academy teacher during a 30 minute observation.

Table 4.2 Academy Observation Data of Instructional Strategies.
Means and Standard Deviations per teacher per observation based on a 5 point Likert scale with 5 = extensively, 4 = frequently, 3 = occasionally, 2 = rarely, and 1 = not observed.

	1st Grade Means	1st Grade Standard Deviations	3rd Grade Means	3rd Grade Standard Deviations	Overall Means	Academy Standard Deviations
Manipulatives	2.53	1.54	2.73	1.73	2.63	1.64
Learning Centers	3.13	1.78	2.40	1.74	2.77	1.80
Differentiated Instruction	1.33	0.87	1.60	1.02	1.47	0.96
Student Engagement	4.73	0.44	4.40	0.49	4.57	0.50
Individual Contact	4.47	0.61	4.40	0.49	4.43	0.56

Academy teachers used the following instructional strategies extensively or very frequently: the promotion of student engagement with a mean score of 4.57 and individual contact with students with a mean score of 4.43. They rarely to occasionally used manipulatives (a mean score of 2.63) and learning centers (a mean score of 2.77), and they very rarely used differentiated instruction (a mean score of 1.47).

According to observational data, Academy teachers spent the most time integrating the teacher practices of direct instruction, independent seatwork, and question and answer. The instructional strategies that were observed the most were manipulatives, learning centers, promotion of student engagement, and individual contact with students.

Observations revealed the teacher practices Academy teachers use the least are drill and practice, individual tutoring, cooperative learning, and inquiry-based strategies. Data also revealed that differentiated instruction was the least observed instructional strategy.

During the interviews, several teachers mentioned the use of inquiry-based strategies, individual tutoring, and cooperative learning as instructional practices, but predominately they emphasized the teacher-directed strategies of direct instruction and independent seatwork.. In regard to the way she integrates instructional activities, Hazel summed up the general findings of this study when she stated:

> Direct instruction is probably the majority of the time (I spend teaching). I do the lessons, whether it's in a small group or whole group, and then I try to give them some activity to reinforce the lesson... For example, I'll teach nouns, we'll talk about nouns, and they'll go back to their seat and work with a partner where they may be cutting nouns out of the newspaper or something to reinforce what they have just seen. I think the majority of this is probably direct teaching, teaching the concepts, followed up by an activity that reinforces.

Direct Instruction.

All 10 Academy teachers indicated in the interviews that they regularly use direct instruction as an instructional practice. This finding supports the observational data that showed that on the average an Academy teacher spent 15.4 minutes per 30-minute observation on direct instruction. Whether with the class as a whole or in a small group,

Academy teachers used direct instruction as a primary educational tool. For example, Cameron stated, "we're almost always doing direct instruction. There's very little time in my day that I'm not doing direct instruction." June agreed, "A big way I teach them is just direct instruction and modeling." In both first and third grade Academy classes, teachers spent the majority of their time directly teaching and presenting content. They used other types of learning strategies to reinforce, re-teach, and review concepts. According to interview data, Academy teachers spent most of their instruction time utilizing teacher-centered direct instruction.

Independent Seatwork.

Observational data revealed that on average an Academy teacher spent 12.2 minutes per 30-minute observation on independent seatwork. In agreement with the observational data, Academy teachers perceived that they use independent seatwork as an instructional practice. For example, Betty reported using seatwork every day in order to review concepts and skills with one group of students while she works personally with another small group. She stated, "I start off with a little morning work on the board, and it is a smidgen of things that we've done from the beginning of school. I try to do that with language and math particularly." June said that she uses, "worksheets as direct teaching tools." In Hazel's class, students work individually on the computer every day using the Successmaker program. Hazel asserted, "They (students) use Successmaker 10 minutes every day for math and 10 minutes for reading." According to Greta, she

employs seatwork to help students learn "to work independently, and learn how to read a paper on their own, read directions, follow it, and do what they need to do."

Eight of 10 teachers made reference during the interviews to using some type of independent seatwork, while all 10 teachers exhibited some type of independent seatwork assignment over the course of the observations. Independent seatwork was an essential instructional strategy Academy teachers employed with their small classes.

Teacher-led Question and Answer.

On average, the Academy teacher spent 5.16 minutes using the instructional strategy of question and answer during the observations, and nine of 10 teachers exhibited this strategy over the course of the observations. Academy teachers regularly interspersed this strategy during direct instruction and independent seatwork. Not one teacher mentioned question and answer during the interviews as an instructional practice they use regularly with their classes.

Drill and Practice.

Observation data revealed that on average an Academy teacher spent 0.6 minutes per observation in drill and practice. Interview data revealed similar findings. Not one teacher claimed during the interviews to use drill and practice as an instructional practice.

Individual Tutoring.

Academy teachers exhibited a mean duration of 0.47 minutes utilizing individual tutoring during the observations. Only two teachers, Betty and Edwina, claimed to use individual tutoring during the interviews. Edwina asserted this when she said, "With the Academy it's very important to use lots of manipulatives, one-on-one with the children, and small group interaction." Betty concurred, "We do one-on-one, we do peer tutoring, we do small group instruction; I even do some tutoring after school."

Cooperative Learning.

Findings from the observation data revealed that on average an Academy teacher spent only 0.33 minutes integrating cooperative learning as instructional practice. Interview data revealed a similar finding in that only one teacher, Betty, made reference to integrating cooperative learning as an instructional practice. Betty stated, "I do cooperative groups because that's the way I like to teach."

Inquiry-Based Learning.

No teachers exhibited inquiry-based strategies during the observations. Interview data mirrored this finding in that not one teacher mentioned using inquiry-based learning.

Manipulatives.

While observational data resulted in a mean rating of 2.63 on a Likert scale, all 10 teachers claimed during the interviews that manipulatives were an integral teaching strategy they use with their Academy classes. Data revealed that all 10 Academy teachers used some form of manipulative at least once over the course of the observations. Teachers perceived that small classes facilitate the use of manipulatives, and most of them are more likely to make use of them with smaller classes. Edwina summed up the beliefs of all 10 Academy teachers when she said, "With the Academy, it's very important to use lots of manipulatives, one on one with the children, and small group interaction." Because teachers went into great depth about manipulatives in the discussion of question three, this aspect of the study will be addressed at further length later.

Learning Centers.

Academy teachers used learning centers as an instructional strategy. The data concerning learning centers were very similar to that for manipulatives. All 10 Academy teachers claimed to integrate learning centers into their classes. Observations revealed that on average an Academy teacher scored only 2.77 (rare to occasional use). All 10 teachers used learning centers at least once over the course of the observations. However, Academy teachers perceived that they use learning centers regularly and extensively with their classes, and small classes facilitate their ease of use. Greta summed

it up best when she explained, "We also do a lot of small group work … hands on manipulatives. I do centers so I basically run the gamut with what they do." Observation data revealed that learning centers are rarely to occasionally used with the Academy classes, and interview data revealed that teachers perceive that they are an integral instructional strategy. Like manipulatives, a further analysis of teachers' perceptions of learning centers will be addressed at length in the discussion of study question three.

Differentiated Instruction.

Findings from observational data revealed that on average the Academy teachers scored 1.47 on the Likert scale for this instructional strategy. Academy teachers did not exhibit differentiated instruction often during the observations. Interview data differed. All 10 Academy teachers claimed to integrate differentiated instruction by individualizing instruction for their students. Several teachers mentioned using the computer program Successmaker. For example, Hazel stated:

> Yes, we have Success Maker on our computer and it's a computer program and it's individualized. That's what it is, we set them up in a lesson, they go through and they use the program and the program tracks how they're doing and it will raise them up if they need, if they're higher it will put them up higher, if they need help with something it lowers them down and the computer does it all. We print out a report and we can read their report and find out if there's an area that a child is really struggling with on that particular program that we can address in the

> classroom. They use Successmaker ten minutes every day for Math and ten minutes for Reading.

Cameron, a first grade teacher, summed up the beliefs of Academy teachers concerning individualization when she said, "You're able to give a lot more of individualized instruction, and when you do have small group time your numbers in small groups are sometimes as small as three to a group which is absolutely wonderful."

Student Engagement.

The observation data revealed a mean score of 4.57 for Academy teachers in the area of student engagement. Throughout the observations, teachers kept the students on-task and focused on the activity in which they were involved. The interviews revealed that Academy teachers perceived that their classes have a nurturing, family-like atmosphere, and this type of atmosphere lends itself to promoting student engagement. (This aspect of the Academy is probed in greater depth in the analysis of research question three.) In the words of Donna, a better understanding of how small classes promote student engagement is understood.

> They hate to leave. I've had kids that need to be checked out and not want to leave the room... In fact this one little girl was just standing there and I was reading a story, and she said, "but Miss ..." She had her backpack on she knew she was supposed to go... She was so worried, and I felt bad... They always enjoy whatever we do.

Isabel explained it this way:

> They do have more opportunities to … have fun in the classroom, and to talk with each other. They can have discussion. They can do things. They can be active as far as like moving their bodies around and not bothering anybody else, because there is nothing for them to hit each other on.

Throughout the interviews, teachers explained the types of activities they use, and they claimed that manipulatives promote student engagement. Seven of 10 teachers claimed that students enjoy working with manipulatives the most, and all 10 teachers claimed to use manipulatives in their classes. For example, Abigail put it this way:

> Anything that they are interacting with, something they can hold in their hand, they work with better. For example, if we are learning to count money, if they've got coins they respond very well to that. When I say we're going to practice math today and we're going to do it on dry erase boards, they were so excited that they were going to practice on dry erase boards. I don't think it's something you can do every day all day long. If you did they would grow tired of that. That becomes routine to them. As long as you can vary it within the day how you do it all week it's kind of fresh to them.

Findings from the observations indicated that teachers are maintained a high level of student engagement. Interview data agreed with the observations and revealed that teachers perceive that their students are highly engaged and motivated.

Individual Contact.

Academy teachers made individual contact with their students,; this is revealed in a mean score from the classroom observations of 4.43. Data from the interviews also support this finding. All 10 teachers claimed it was easier to make individual contact with students in small classes. Edwina explained it best when she commented:

> If I give a writing assignment, I could easily get to each child's desk and help them proofread and edit their papers, whereas, if my classroom (had) 20 or more, which I have had, you may get to three or four and conference with them and then have to take them home… It might take a week to conference with 20-25, but with 13 children I can pretty much get to them every single day.

Hazel agreed and said, "With 12 kids I know exactly where all my kids are because I can spend so much one-on-one time with them." Isabel added, "I have a lot more contact one-on-one." Cameron thought that smaller classes allow her more time with each child. She asserted, "I can always identify the children easily that needed the help. It's just that I didn't have the time to give them as much help as I wanted to."

Findings from both observational and interview data reveal that the instructional strategies Academy teachers utilize the most were direct instruction, independent seatwork, and question and answer. They sometimes integrate manipulatives and learning centers into their lessons, and they promote a high level of student engagement and made individual contact with each student. The major discrepancy between interview and observation data dealt with differentiated instruction. On average, Academy teachers

rarely exhibited this practice while all 10 teachers perceived that they integrated this strategy.

Question Two

What differences and similarities in instructional practices exist between first and third grade Academy classes? As was noted in the findings for question one, the teacher practices and instructional strategies Academy teachers use the most are direct instruction, independent seatwork, question and answer, and to some degree manipulatives, and learning centers. Interview data revealed no fundamental difference in the types of instructional practices that first and third grade Academy teachers perceived they used. For example, June, a third grade teacher, recollected the instructional practices she implements this way:

> A big way I teach them is just direct teaching and modeling... We use worksheets as direct teaching tools. We're able to go over it better as a small group one on one, and I'm able to see concrete evidence right then if they've learned. We do hands-on things. It's easier to do projects and hands-on things with a small group like this... Centers, I use centers a lot. We go from games to computers to listening centers and different things like that.

Another third grade teacher, Isabel, provided these same sentiments when she recalled:

> We do a lot of manipulatives. We do a lot of group work. I do some direct instruction. I'll try my hardest to get my one on one with them in certain areas...

> We do some inquiry-based but not a whole lot though... We do a lot of discussion where it's not just necessarily me speaking but everyone... Teaching a small class has allowed me to do more, I guess, kind of adventurous things in teaching as far as letting them do active things to learn.

Many teachers mentioned the use of several teaching strategies at the same time. This is reflected in Hazel's following statement:

> We use some whole group activities. We start with our reading in the morning, and we have an hour of whole group reading. That means all the children are together in one spot. We do shared reading and read alouds... They do partner reading; they do partner writing, a lot of working together. We have small group reading also in the morning... there are about three or four children in each group. The other groups are working in the center activities at that time.

First grade teachers perceived that they use the same type of strategies as those mentioned by third grade teachers.

> We do have learning centers in first grade. We do one-on-one; we do peer tutoring; we do small group instruction.... Manipulatives, anything that's tactile based. They usually respond to that.... The thing I've done more with this class than my other first grade classes would be the working with words where you're actually manipulating those letters. (Betty)

> We're almost always doing direct instruction. There's very little time in my day that I'm not doing direct instruction.... We use a lot of manipulatives with Saxon math. (Cameron)
>
> We have a lot of hands-on activities. We have a lot of rug time.... A lot of my teaching takes place just on the rug and in a circle. (Donna)

The interview data reflects that first and third grade teachers believe that they use the same type of instructional practices in their classes. They specifically focus on direct instruction, independent seatwork, manipulatives, and learning centers. All 10 teachers mentioned the use of direct instruction, manipulatives, and learning centers, and eight of 10 teachers claimed to integrate independent seatwork into their lesson. There was no marked difference between the two grade levels in regard to the interview data.

Using Microsoft Excel, first and third grade data from the observations were tabulated and differences noted. Means and standard deviations for each of the teacher practices and strategies were calculated for both first and third grade Academy classes. A t-test was conducted to compare the teacher practices and strategies between grade levels (see Table 4.3). Given a probability level of $\alpha = .05$ and degrees of freedom (df) = 28, the p value was determined to be 2.05, therefore any t-value less than 2.05 was determined not to be significant.

Table 4.3 Academy Observation Data for Teacher Practices and Strategies. Means, Standard Deviations, & t-values ($\alpha = .05$, $df = 28$, and p value = 2.05) per observation, per teacher.

Instructional Practices	1st Grade Means	1st Grade Standard Deviations	3rd Grade Means	3rd Grade Standard Deviations	t-value
Teacher Practice					
Direct Instruction	16.13	6.25	14.67	9.71	0.48
Independent Seatwork	12.93	10.68	11.47	11.08	0.36
Drill and Practice	1.20	1.83	0.00	0.00	2.45
Question and Answer	6.40	6.32	3.93	4.77	1.17
Individual Tutoring	0.00	0.00	0.93	3.49	-1.00
Cooperative Learning	0.40	1.50	0.27	1.00	0.28
Inquiry Based	0.00	--	0.00	--	--
Instructional Strategy					
Manipulatives	2.53	1.54	2.73	1.73	-0.32
Learning Centers	3.13	1.78	2.40	1.74	1.10
Differentiated Instruction	1.33	0.87	1.60	1.02	-0.74
Student Engagement	4.73	0.44	4.40	0.49	1.89
Individual Contact	4.47	0.62	4.40	0.49	0.32

There was no significant difference between first and third grade teachers in regard to teacher practices or strategies with the exception of drill and practice that had a *t*-value of 2.58. Drill and practice had a mean duration of 1.2 minutes in first grade but was not observed in third grade. It is important to note that since third grade teachers did not exhibit drill and practice and first grade teachers did not exhibit individual tutoring a mean of zero was assumed for each respectively. Observational data revealed that the means of first and third grade teacher practices and strategies were remarkably similar (see Figures 4.1 and 4.2 on pages 64 and 65). It is also interesting to note that first grade teachers realized higher means in all teacher practices except for individual tutoring. In regard to instructional strategies, first grade teachers had higher means in use of learning centers, student engagement, and individual contact. Third grade teachers had higher means in use of manipulatives and differentiated instruction.

According to observational data, both first and third grade Academy teachers integrated direct instruction, independent seatwork, question and answer, and, to some extent, manipulatives, and learning centers into their teaching. Observations also revealed they rarely used drill and practice, individual tutoring, cooperative learning, and inquiry-based methods. Neither group demonstrated differentiated instruction.

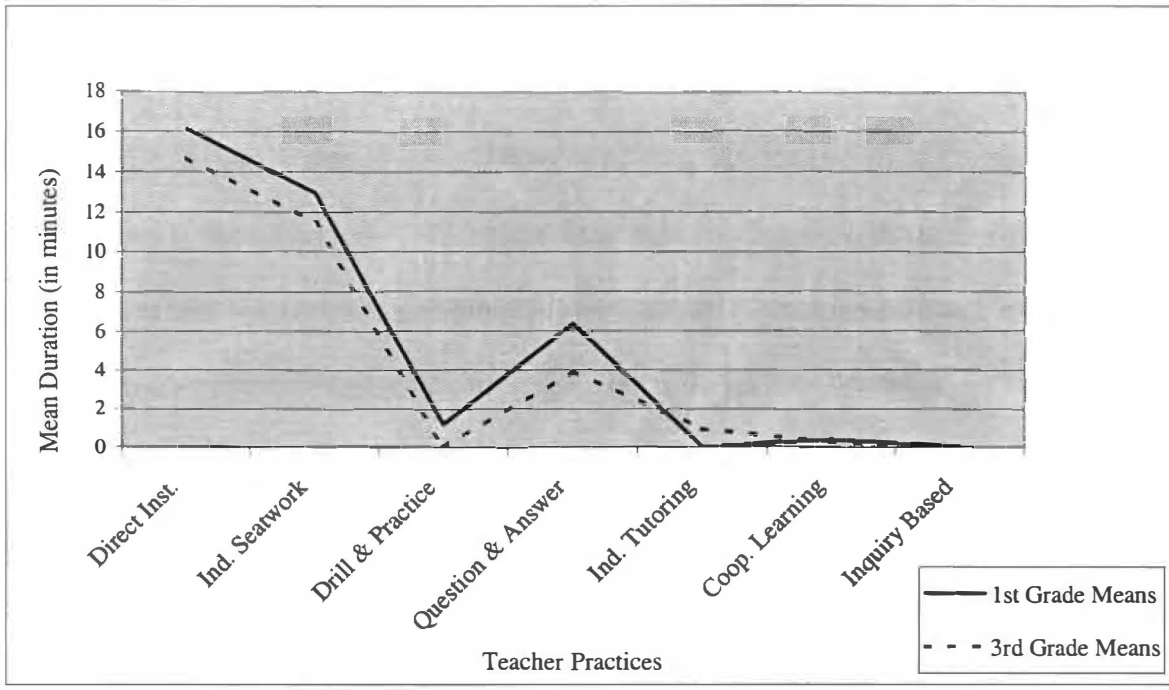

Figure 4.1 Academy Observation Data: 1st and 3rd Grade Duration Mean Scores for Teacher Practices.

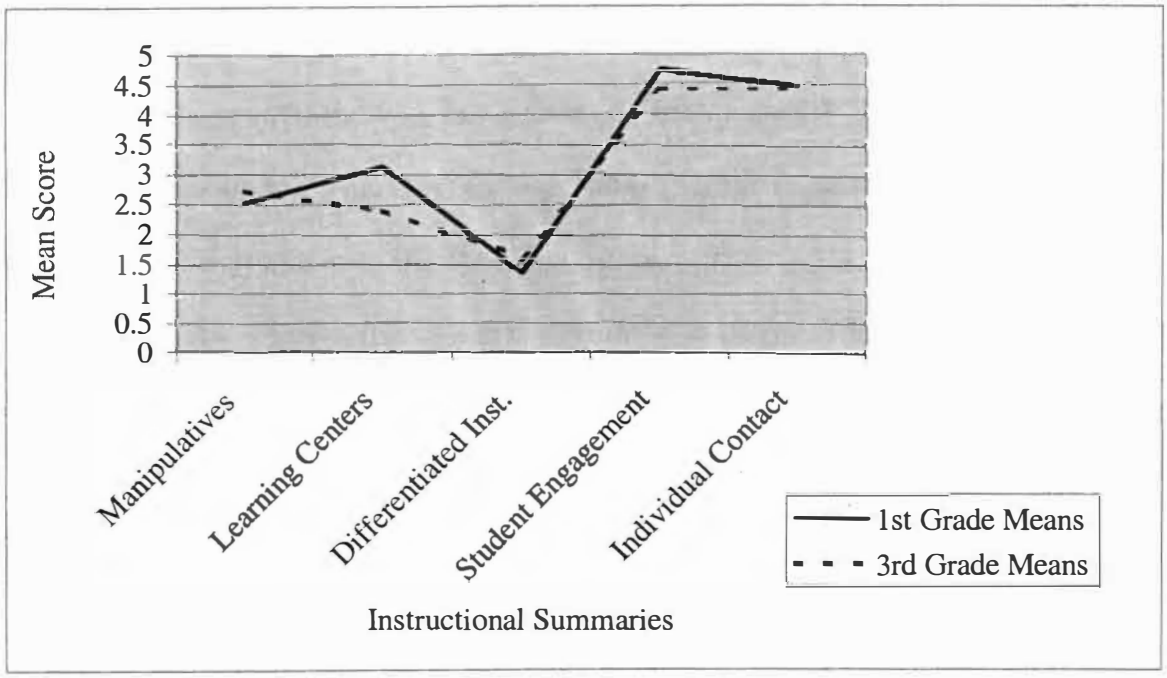

Figure 4.2 Academy Observation Data: 1st and 3rd Grade Mean Scores for Instructional Stategies. These are based on a 5 point Likert scale with 5 = extensively, 4 = frequently, 3 = occasionally, 2 = rarely, and 1 = not observed.

Question Three

What changes in their instructional practices do Academy teachers perceive as a result of teaching small classes? Using the data from interview questions four, seven, nine, 10, 11, and 12, three themes became evident in regard to Academy teachers' perceptions of how they change their instructional practices teaching small classes. First, Academy teachers perceive that small classes facilitate the integration of manipulatives and learning centers into their lessons. Second, Academy teachers believe that they are able to easily and quickly evaluate student learning and provide more individualization of instruction. Third, Academy teachers perceive that the additional time they gain from a reduced workload and fewer classroom management issues is used to re-teach and review the core curriculum.

Manipulatives and Learning Centers.

Academy teachers believe that reduced class size does not substantially alter their instructional strategies from the ones they would commonly use in larger classes. However, most teachers perceived that small classes facilitate the use of manipulatives and learning centers into their teaching practices. All 10 teachers stated that they are more likely to use manipulatives and learning centers with their small classes. Edwina, a first grade teacher agreed that using manipulatives is an essential instructional practice in her Academy class. "As long as they are touching it and handling something and doing it for themselves and seeing it they learn the best." In response to how teaching small

classes has changed the way she teaches, Abigail reflected the opinions of the other teachers when she stated: "I guess I do more hands-on… I've got to do more student involvement type of teaching. It's changed me that way."

Donna, another first grade teacher, explained how she is able to integrate more easily learning centers and manipulatives to reinforce learning concepts with smaller classes.

> When we're at the rug and I get out hands-on things we do extremely well. We always start out with a hands-on type of thing on the rug before we ever take it to the desk. I actually try to find a good time where I can talk about the new concept and do it on the rug and then go back to the desks. When I had a lot of children, I never did that because it would have been chaos with 23 kids on the carpet.

Betty noted the ease of integrating manipulatives when she said, "it's easier to manage with only fifteen. You can get things passed out and picked up a lot faster with fewer children."

Third grade teachers also agreed that manipulatives are easier to manage and integrate into their teaching in small classes. Faith believed that it is easier to use manipulatives with smaller class because, "it saves them time," and "because of the money too. You don't have to purchase 30 rulers as opposed to 15, or I don't have to cut out 100 letters." Greta helped to clarify why manipulatives are easier to integrate with smaller classes when she stated:

> Any time you've got a larger class you do not want them to transition a lot because it opens itself up for lots of management issues and lots of chaos. You're

> less likely to do a whole lot of discussion, less likely to do anything hands-on, anything that can create movement and transition.

Hazel reflected the general consensus that it is easier to use manipulatives with small classes.

> We use manipulatives for math regularly. Everyday they are doing something hands-on with what they've learned in class. Everyday it's different things for different days, but we're always doing with their hands to help them visualize what we're actually doing. We've even been known to use shaving cream for our spelling words. I think you can probably do that more with a small class than you could with a class of 20 something children. You can control it a little bit better, but we definitely use a manipulative.

Isabel agreed.

> It's easier to keep everybody on task because you do not have to deal with as many students. You can see directly what everyone's doing. You can stay on top of them as to making sure that they are using the manipulatives in the correct way. Also, even in getting them passed out or collected and things like that it takes a less amount of time.

Another area where Academy teachers claimed small classes benefit instruction is in the use of learning centers. All the teachers claimed to use learning centers as an instructional practice and most of them believed that small classes facilitate the integration of learning centers. June stated:

> Centers, I use centers a lot. We go from games to computers to listening centers and different things like that. It's easier with a small class to do that. With a large class you've got so many kids there's no place to put the centers. There's so much movement it's hard to control discipline.

Betty stated that she has used learning centers for years, but she has noticed how small classes facilitate their use.

> I think it's easier to manage them. I still do the same things that I did with my larger class, but it's easier to manage them. It's easier to manage 15 than 22 or 23, because you've got extra children in each center. There are three or sometimes four in each center and it gets kind of hairy when you've got that many.

While Betty perceived smaller classes as facilitating the ease of use in learning centers, other teachers claimed that they use learning centers more readily with small classes.

> We have a lot of rug time whereas when I had a larger class I would actually be frightened. The Rug, they won't be in chairs, they won't be in desks; they'll be out of control. A lot of my teaching takes place just on the rug and in a circle. (Donna)

> I guess I do more on the rug type of activities with this class than I did with my other previous first grade classes because they are a smaller group and you can sit down and do more around the row type things. I'm able to do more group activity on the rug with them. (Abigail)

> You could still do centers in that group (class of 15) but a large class of 25 that would be really difficult. I can spread them out in the small room and they're not really on top of each other... Having kids all on top of each other they get distracted so much easier and yeah, I mean, I definitely think the smaller class sizes are a benefit. (Isabel)
>
> With smaller class size I'm able to have more centers running with smaller groups so it's not so chaotic I guess you would say. So I can probably individualize in that aspect you know a little bit better. I know talking to the other third grade classes I can have the same number of centers and have two children to a center, which is definitely more manageable than having six children to a center. (Hazel)

Hazel also noted that small classes have a more controlled atmosphere for center activities and this allows her to provide individualization for students more easily.

> At the end of the day we have about 30 minutes, and they do a center activity. So, if I have a child who, for example, I have one that's struggling with money. She has very difficult time counting money. I can pull her to the side, sit with her, work with her on the money, and I can give her activities to do that I can supervise with her.

(It is interesting to note that the use of centers was rare to occasional during the 30, 30-minute observations conducted.)

The interview data revealed that Academy teachers believed that they use the same types of instructional strategies with small classes that they did with large ones, but

that it is easier to integrate manipulatives and learning centers into small classes than into the large classes they taught in the past. They believed that small classes are easier to manage and having fewer students allows for fewer distractions thereby increasing the likelihood of integrating manipulatives and learning centers into their pedagogy.

Evaluating Student Progress and Individualization.

In the interviews, Academy teachers perceived that small classes give them more time to evaluate each student's progress and adjust instruction accordingly. They also reported that small classes make it easier for teachers to know exactly where each child is and individualize instruction. Betty reflected the consensus of all Academy teachers when she said:

> I can look at their work quickly, and we can go over it on the board quickly. You can take time to do that in a regular classroom too, but with more kids it takes more time. It takes more time to review what they've done; it takes more time to include everybody... With a larger classroom it takes twice as long to get everything included.

Abigail recollected, "I've been able to pull them over easier and work with them.... I'd say in a classroom of 20 or 22 you don't have as much time to pull them (aside)." Hazel also reiterated this belief when she asserted, "I would say it would probably be a little harder with more children. With 12 kids I can know exactly where all my kids are because I can spend so much one-on-one time with them." She further

explained, "I think with this small class I can get to every child, like if we're doing an activity, I can usually reach every child during that activity time." Isabel concurred with these assertions when she commented, "My class is so small that regardless of what we are doing there's enough time for me to look around.... I can see who's on task and who's not on task."

With fewer students, Academy teachers believe they are able to evaluate each child's learning regularly and provide extra help and feedback. Isabel stated it this way, "right now my class is so small that regardless of what we are doing there's enough time for me to look around. Look at what everyone is doing. See what everyone's doing ... to see if they are going in the right direction." June commented, "We're able to go over it better as a small group... I'm able to see concrete evidence right then if they've learned." Faith believed having fewer students helps her to identify students who are struggling, "it's easier because I don't have to walk around 25 students as opposed to going around to see how 15 students are progressing on what I just taught. When they're doing individual work on their own, it just seems like I can kind of see if they're having troubles."

Cameron believed her small class allows her more time to help each child than when she taught large classes. She explained it this way, "I can always identify the children easily that needed the help. It's just that I didn't always have the time to give them as much help as I wanted."

Overall, Academy teachers perceived that they are able to evaluate sudent learning more easily in small classes and thereby provide more individualized instruction. They can identify students with needs and individualize, or they are able to progress through their lessons more quickly, knowing that students have grasped the concepts presented.

Re-teach and Review.

The purpose of the Academy program is to create an environment that promotes student achievement for at-risk students. Because many of the students involved in the Academy classes are low-achieving, teachers believe that they use any additional instruction time created by the nature of the small class to re-teach, review, and reinforce core curriculum concepts. Academy teachers thought that small classes provide more time to re-teach and review. For example, Donna explained, "I get through my lesson plans, and I get to teach everything, and it's a good feeling. You feel like they're learning and you're teaching and it's really wonderful." Edwina agreed, "It takes all week to do the same techniques with a larger class where I can pretty much accomplish those in one day with a smaller class."

Hazel emphasized how small classes make it easier to know when to re-teach material when she asserted:

> Usually before I even finish my lesson I can pretty much say they have it or they're completely lost, and I need to find something else to do with them to get

> through that. I'm not as likely to move on to something because there are so few of them. I can get their interaction with me and I can look at them or I can talk to them during whole group time and know if a student id completely confused… I need to find something for her or the whole group is lost. I think with that interaction I can get from them that improves that for me.

She further explained how she spends her instruction time reinforcing concepts.

> If we do nouns, we'll talk about nouns, and they'll go back to their seat and work with a partner where they may be cutting nouns out of the newspaper. I think the majority of this is probably direct teaching, teaching the concepts, followed up by an activity that reinforces.

Edwina also noted:

> Because it's the Academy, I use my time just to teach the basics. I don't think that I have the time to go into more depth. It just takes the time to actually teach the skills in a more thorough way that these children need to apply. They need that extra time and that extra practice to apply those basic skills.

In order to move students toward grade level, Abigail asserted that she has to spend any additional time covering core curriculum material. She explained it this way, "I have to spend a whole lot of time covering and going over and reinforcing just the basics. I don't find I have a whole lot more time to go in depth because it takes longer to cover the basics." Betty concurred, "I'm so intense on them learning and mastering these skills that we do more working toward the mastery by teaching and re-teaching."

June reflected the beliefs of all the Academy teachers when she commented about how it is easier to re-teach students in small class than a large one.

> If you have 25 and you have half of them that didn't get it the first time around, it's hard to go back and re-teach to that 14. But if you have 15, it's real easy to pull four or five over that didn't get it during a different time, maybe center time or maybe another time during the day and re-teach it.

All 10 Academy teachers believed that small classes give them more instructional time. They also proposed that re-teaching is an essential part of pulling their students up to grade level. They suggested that re-teaching opportunities can take the form of whole class instruction, small group instruction, or help support individualization. Cameron reflected the general consensus when she recollected, "I certainly have felt that there's far more time to do re-teaching … because of the small class size for any child that needs extra help or needs you to take a different approach." She also expressed how small classes haven't changed her instruction as much as fine-tuned it. "I haven't changed my instructional practices… It's just a matter of you're able to zero in on skills. We teach a more in-depth way and re-teach. If you need to re-teach you can hit from more different angles."

Through a member check, Academy teachers agreed with the themes the researcher drew from interview data. For example, June said, "Excellent! I agree totally." Cameron reiterated this when she stated, "I find your perspectives to be accurate." And Faith summed up the Academy teachers' opinions when she commented, "each theme

seems to be right on target and true." Teachers thought they were more able to integrate manipulatives and learning centers into their instructional practices with small classes than with larger ones. Academy teachers perceived that small classes facilitate the evaluation of student learning and thereby promote individualized instruction, and they also believed that small classes promote the instructional practices of re-teaching and review.

Other Findings

Interview data produced other findings not specifically addressing the three research questions. Interview questions one, three, four, five, eight, and 12 revealed important findings that need to be addressed.

First, there was no consensus among Academy teachers about why they decided to teach Academy classes. Some teachers mentioned the challenge of teaching at-risk students while others mentioned small class size. Several teachers mentioned that they decided to teach these classes because it was the only position available. Overall, there was no agreement between the Academy teachers about why they decided to teach in this program.

In regard to the activities students enjoy the most, the ten Academy teachers were evenly split between manipulatives and small group work. Isabel explained it best when she said, "Mostly, they enjoy the ones where they're doing… using like manipulatives or doing something with groups." Faith made this comment about the activities students like

best. "Any hands-on activities they enjoy, and they seem to retain the information a lot better." Donna reflected her position when she stated, "They love doing things with partners. They love being able to talk and express themselves and of course when you have a (larger class) you can't do as much of that."

Academy teachers believed that they do not generally integrate many enrichment opportunities or expand on the standard curriculum with their classes. The general consensus of the teachers was that they spend most of their time teaching the basics because their students enter below grade level. June's comments about these areas best describe the beliefs of all the Academy teachers.

> It takes a longer time with an Academy student to get an objective to stick in his head. With a traditional classroom, a non- Academy student, it doesn't take so long. Sometimes you can introduce it and most of them will get it, but with the Academy student it ... may take two weeks. (In a traditional class) we may take one week for reading a story, in here we may need to take two weeks so that we use extra time to make sure we get that skill to soak in and they get it, because if we move on too fast, then everything we've done doesn't soak in.

Another additional finding dealt with class size preference. All ten Academy teachers preferred to teach small classes. Nine out of 10 believed that the ideal class size is 15 or fewer. Hazel reflected the consensus of the Academy teachers when she commented, "I think this class size is wonderful. I wish every class could have this small class size." Only one teacher mentioned an ideal class size larger than 15. Greta thought

the ideal class size should not be larger than 18, but all ten teachers perceived that small classes are ideal.

Finally, one noteworthy finding of this study must be addressed. Interestingly, all 10 Academy teachers described their classes as having a unique positive environment where they developed close relationships with each student, and students were supportive of each other. The teachers perceived this condition to be a result of smallness and found it unlike the environments they experienced with larger classes. Academy teachers perceived that instructional effectiveness develops from this caring, nurturing, supportive environment. Research supports this, and it has been found that students in small classes develop deeper relationships with one another as well as with their teachers. Students in small classes display positive self-esteem and enthusiasm for learning.

Hazel, voicing the consensus, explained how having fewer students enables her to make personal connections more easily with each child in a small class than in large classes.

> I really think that you are able to really get to every child... when you get a very small class you're going to get to know your children even better than you would with a large group of children. Every morning when they come in they all want to tell me something. With 12 children I can take the time to listen to them... With larger classes I don't know that you take the time to listen to 25 children tell you everything they want to say.

Reinforcing this concept, June believed that her small class allows each student to be heard, and allows her to understand each child individually.

> My first year I taught, I had 32 children in a sixth grade science class, and I didn't know all of their needs… I think I just needed some more personable (time). There's more time to share with them. I think children just learn from you talking to them one on one.

Isabel also made this assumption when she said, "I think I have a good relationship with the students. They come to me all the time even with personal issues. (Small) class size allows you to know them on a more personal basis."

Many of the teachers described their classes like family. For example, Cameron described her class's family-like atmosphere, and how it benefits the educational environment.

> We definitely have a greater sense of family… I don't have one discipline problem… I think all of my students feel like we have a more intimate relationship than perhaps in a larger classroom setting, and so they all seem to work really hard to try to please me and try to do what they think they should be doing. I think there is a greater sense of family and community and trying to help each other in a small class definitely.

Faith agreed, "We are more … like a little family because of the way I have my desks arranged at the centers. There is not as much bickering."

Explaining that her students are able to get to know each other better and how that has led to a positive environment, Edwina noted that in previous years with larger classes students had a greater tendency to form cliques. In small classes, "they get to know each other better. They have more one on one time with one another… They probably have gotten to know each other better than in a regular classroom." Greta believed that small classes create a positive atmosphere that promotes learning. She said, "I think that if they feel comfortable with the teacher, if they feel comfortable in the classroom, if they have a level of confidence, it makes all the difference in the world." In this same vein, Betty explained how the students in her class have become supportive of each other, and this has created a unique learning environment.

> These kids encourage each other when we're having a competition. If someone loses they will still applaud the person who wins. It's amazing to me. I had one (student) that came in October that couldn't speak English and she started saying a few words, everybody cheered every time, and they still do with each other. They'll say, "Good job, you did great. I like the way you did that." They say it to each other as much as I say it to them. I've never had a class to do that. It was more of a competitive; "I can do it better than you."

Hazel reiterates Betty's description of a safe, nurturing environment:

> A small class makes them feel secure, and I think that's a big aspect in a small class … I think if you feel safe in a classroom you are going to be more likely to pay attention to what's going on. You are going to feel safe to ask questions. You

> are going to feel safe contributing … I think with a small class they kind of feel like they can. They're part of things, and I think that's so important for their instruction.

Overall, Academy teachers perceived that small classes create a safe, nurturing environment that reflects a family-like atmosphere. Students get to know each other, and teachers can get to know each student individually. Cameron summed up the perceptions of the Academy teachers when she stated:

> This has been one of the most rewarding experiences in many ways of any year that I've taught. I feel extremely close to every child in this classroom, and I have seen an enormous amount of progress from every one of them. I'm just thrilled with not only the amount of learning that has taken place… but I'm also thrilled with the excitement that I see these children have about learning.

Chapter 5

Conclusions, Discussion, and Recommendations

In this chapter, conclusions and a discussion of the findings of this research study are addressed. Recommendations and implications for further research are presented. These conclusions are based on findings described in Chapter Four.

Conclusions

The findings of this study lead to five general conclusions:

1. Based on findings for research question one (**What instructional practices do Academy Teachers employ in their small classes**?), the teaching practices most used by Academy teachers in both first and third grades during this study were direct instruction and independent seatwork, and the instructional strategies they used the most were promotion of student engagement and making individual contact with students.

The mean duration per Academy teacher per 30-minute observation for direct instruction was 15.4 minutes, and the mean duration for independent seatwork was 12.2 minutes. Based on Likert data, the observations revealed an overall mean score for Academy teachers of 4.57 for student engagement and 4.43 for individual contact. All Academy teachers used these teaching practices and instructional strategies in their classes to some extent. In addition, interview data revealed that all 10 teachers claimed

to use direct instruction, eight of 10 teachers claimed to use independent seatwork, and all 10 teachers believed that they promote student engagement and make individual contact with student.

2. Findings pertinent to research question two (**What differences and similarities in instructional practices exist between first and third grade Academy classes**?) lead to the conclusion that first and third grade teachers used essentially the same teaching practices and instructional strategies for essentially the same amount of time. The major exceptions were that first grade teachers significantly spent more time in drill and practice than third grade teachers. First grade teachers also spent more time in question and answer than third grade teachers.

Observational data revealed no significant difference between the teaching practices and instructional strategies of first and third grade Academy teachers with the exception of drill and practice. A t-test with a p value = 2.05 revealed a t-value of 2.45 for drill and practice. It is important to note that the researcher assumed a mean score of zero for third grade teachers since this practice was never observed. Observations also revealed that the mean amount of time pent in a 30-minute observation for question and answer by first grade teachers was 6.4 minutes while it was 3.93 minutes for third grade teachers. Interview data did not reveal any differences between the perceptions of first and third grade Academy teachers for instructional practices.

3. Findings for question three (**What changes in their instructional practices do Academy teachers perceive as a result of teaching small classes**?) lead to the conclusion that Academy teachers believe that small classes create an environment that is more conducive to learning thereby enabling them to strengthen the instructional practices they have always used.

Interview data revealed three themes in regard to how teachers changed instructional practices based on class size. First, Academy teachers are more likely to integrate manipulatives and learning centers into their lessons with small classes than with large ones. Second, they believed that evaluating student progress is easier in small classes and it promotes individualized instruction. Third, they perceived that they have more time for instruction with small classes, and they are able to re-teach and review the core curriculum. They claimed that they used all of these techniques with large classes in the past, but small classes create an environment enhances and strengthens their use.

4. Teachers in this study perceived that they use certain instructional strategies (differentiated instruction, manipulatives, and learning centers) more extensively than was observed.

According to interview data, all ten teachers claimed to integrate differentiated instruction, manipulatives, and learning centers into their lessons. Observational data revealed different findings. Based on Likert data from the Academy Class Observation Summary forms, Academy teachers scored a mean per 30-minute observation of 1.47 in differentiated instruction, a mean of 2.63 in use of manipulatives, and mean of 2.77 in use of learning centers. Differentiated instruction was not observed or rarely observed, while manipulatives and learning centers were rarely or occasionally observed.

5. Teachers in this study believed that their small classes create unique, family-like atmospheres that are very different than those of large classes and that this environment helps promote student learning and improves the educational atmosphere of Academy classes.

All 10 Academy teachers perceived that a change occurs in classroom environment between small and large classes. They described Academy classes as having nurturing, family-like atmospheres that promote student learning and educational cooperation among student. Teachers develop close, personal relationships with each child that is not possible in large classes. Students participate actively in learning, and encourage each other to excel. This unique environment promotes learning and facilitates instruction by increasing productivity and instructional effectiveness. Teachers perceived

that students are excited about learning, and they believe each child has the opportunity to be heard in the small class.

Discussion

Findings of this study were limited by the size of the population. Because of the purposive nature of the sampling, no generalizations can be made beyond the scope of the participants studied. This study focused on the instructional practices of teachers of small classes in the first and third grade Academies only. The nature of this study gives a deeper understanding into the environment of small classes and should act as a springboard for future research.

The results of this study correspond to other research findings on class size. Other studies have revealed that teachers of small classes are more likely to use teacher-centered strategies, evaluate each student's progress, use their time re-teaching or reviewing, and integrate manipulatives and learning centers (Achilles, 1998; Betts & Shkolnik, 1999; Campbell, 1990; Farber & Finn, 2000; Johnston, 1990; Rice, 199; Zahorik, 1999). Research also supports the idea that small classes create a more educational friendly atmosphere where students are comfortable and display positive self-esteem and enthusiasm for learning (Chase et al., 1986; Egelson et al., 1996; Harman & Egelson, 1998; Zahorik, 1999).

It is important to note that this study did not delve into the at-risk nature of the students being serviced by the Academy program, nor did it take into account the training

Academy teachers received in dealing with this type of student population or in teaching small classes. The focus of this study was to understand what instructional practices Academy teachers utilized, what differences existed in instructional practices between first and third grade teachers, and what were Academy teachers' perceptions of how they teach differently in small classes. There may be underlying factors that explain the similarities across the Academy teachers. Discovering them might prove beneficial and should be the focus of subsequent research studies.

One underlying assumption of this study was that teachers make changes to their instructional practices based on class size. The preponderance of current research reports that there is not a wholesale change in instructional practices, and the perceptions of Academy teachers' about their instructional practices do not stray from this premise. They revealed nuances of minor changes and adjustments, and they credited the inherent nature of smallness as an impetus of influence. Future research might compare the instructional practices between Academy and regular classroom teachers. This would be a beneficial endeavor for increasing understanding about the relationships between class size and instruction.

The timing of observations and interviews may have affected the outcomes of this study. Observations were scheduled for January, February, and March with the interviews following in late March and early April. Teachers were preparing students for the statewide achievement tests during these times, and this may have influenced observational data. This busy time of year may have limited the scope of observed

behaviors. On the other hand, the interviews were conducted toward the end of the school year and they provided the teachers the opportunity for a deeper reflection of their yearlong experiences with their Academy classes. Future researchers would do well to maintain an extended stay in field to broaden the scope and depth of understanding.

The purpose of this study was to examine the instructional practices of Academy teachers of small classes, as well as determine their perceptions of how they teach differently in regard to class size. This research study provided a unique opportunity to gain insight into the practices and beliefs of teachers of small classes so that future study focusing on causal relationships can be conducted.

Recommendations

One aspect of qualitative research is to act as a springboard for future studies. This study, while not strictly qualitative, opens up many possibilities for future class size research. Next year the Cleveland School System is intending to expand the Academy program to include fifth grade. Including another grade level would broaden this study and facilitate a wider comparison of instructional practices across grade levels. One investigative possibility could include a correlation study that takes into account student achievement data from Academy and regular classes. Such a study would greatly enhance the body of knowledge in class size research.

A longitudinal study like the STAR Project would also have significance in understanding how teaching small classes changes teachers' instructional practices. Both

STAR and its follow-up study the Lasting Benefits Study focused on student achievement and neither focused on changes in instructional practices. A long-term study is needed that evaluates changes in teachers' instructional practices. One interesting twist would be to create an experimental study where one group of teachers is provided training in teaching small classes and the control group is not provided any training.

In this vein, Ehrenberg, Brewer, Gamoran, and Willms (2001) in their article, "Does Class Size Matter," call for studies that will give greater insight into the relationship between class size, student achievement, and instructional activities at various grade levels. While this study sought insight into the instructional practices in first and third grades, including student achievement data and expanding this study to include fifth grade would be one way to accomplish this goal. It would also be beneficial to implement small classes with heterogeneous groupings in order to generalize any findings to the greater population.

Educators need to be aware of the effects of class size on learning environments at different grade levels. Teachers may need to teach differently to different ages, or they may need to implement instructional practices that are more commonly used with other ages. A greater understanding of best practices at various grade levels in classes of differing sizes strengthens the foundation of education.

Another recommendation of this study is to provide Academy teachers greater understanding into appropriate instructional practices for their classes. All 10 Academy teachers reported integrating differentiated instruction, but this practice was rarely

observed. Also, the practice of question and answer was commonly observed but never mentioned during the interviews. These incongruities deserve attention. Staff development and focused training need to focus on these practices and other practices such as drill and practice, individual tutoring, cooperative learning, and inquiry-based instruction that were not prevalent methods of instruction. Academy teachers need to broaden their understanding of these techniques and recognize ways to implement them.

Finally, the at-risk nature of the student populations that make up the Academy classes needs to be addressed in future research. This present study did not address the at-risk nature of Academy students. Is there a greater benefit for at-risk students in smaller classes than for other types of students? Do at-risk students have greater gains in achievement in smaller classes? Research studies that investigate these questions could be of great benefit to the field of education, especially in regard to the allocation of resources.

Summary

This study investigated the instructional practices of 10 Academy teachers of small classes, and sought to determine their perceptions about changes in their instructional practices in regard to these classes. By means of a series of observations and teacher interviews, results indicated that Academy teachers are most likely to incorporate the teacher-centered instructional practices of direct instruction and independent seatwork. Along with these, they integrate the student-centered practices of

manipulatives and learning centers. Academy teachers enhance instruction by promoting a high level of student engagement and making frequent individual contact with their students. There were no apparent or significant differences between first and third grade Academy teacher practices with the exception of drill and practice and question and answer. Academy teachers believed that small classes do not alter their instructional strategies as much as they enhance them. Small classes allow teachers to integrate learning centers and manipulatives more easily into their lessons; they have more opportunities to review and re-teach material; and they are able to more easily evaluate student progress. Finally, an additional significant conclusion drawn from findings outside the framework of the research questions was that small classes create a caring, nurturing, family-like environment that is very different than the environment of a large class. This small class environment promotes student learning and enhances the instructional atmosphere.

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Appendix

Appendix A
System Superintendent Permission Letter

CLEVELAND CITY SCHOOLS
4300 Mouse Creek Road N.W.
Cleveland, Tennessee 37312
Telephone 423/472-9571
Fax 423/472-3390

Frederick I. Denning, Ed.D.
Director of Schools

October 2, 2003

To Whom It May Concern:

As Director of Cleveland City Schools I have given my consent for Mr. Ed Fickley, Cleveland Middle School, to conduct data collection in the form of questionnaires and personal interviews. Additionally, he will need to collect observational data which he needs to fulfill the requirements and research for his dissertation in the instructional practices of teachers in small classes in our first and third grade academy program.

I applaud Mr. Fickley in his academic efforts and wish to do all to encourage him in his efforts.

Sincerely,

Frederick I. Denning, Ed.D.
Director
Cleveland City Schools

Appendix B
Academy Observation Scripting Form

Academy Observation Scripting Form

Teacher: _____ Date: _____ Time: _____

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31. _____

Appendix C
Academy Class Observation Summary Form

Teacher Observed _____ Date of Observation _____

Time of Observation _____

Academy Class Observation Summary Form

Teacher Practice	**Duration**	**Description**
Direct Instruction	_____	_____
Independent Seatwork	_____	_____
Drill and Practice	_____	_____
Teacher led question and answer	_____	_____
Individual tutoring	_____	_____

Academy Class Observation Summary Form
(page 2)

Teacher Practice	Duration	Description
Cooperative/collaborative learning groups	_____	_____
Inquiry-based learning	_____	_____

Instructional Summaries

Directions: Circle the description that best describes each instructional summary based on the classroom observation.

	Extensively	Frequently	Occasionally	Rarely	Not Observed
Teacher uses manipulatives as instructional tool.	5	4	3	2	1
Teacher uses learning/work centers for instruction.	5	4	3	2	1
Teacher makes use of differentiated instruction.	5	4	3	2	1
Teacher promotes high level of student engagement.	5	4	3	2	1
Teacher makes individual contact with students.	5	4	3	2	1

Appendix D

Academy Class Observation
Administration Manual

Observation Period

Three observations of 30 minutes each should be performed on each teacher. The time entering and leaving the classroom must be recorded on the observation form as well as the date of the observation and the teacher observed. The times of these three observations are purposively selected in order to sample classroom instruction in the early morning, late afternoon, and early afternoon. The observations should be announced and planned with the teacher prior to arrival, and the principal must be made aware of the observation visits.

Small Class Observation Scripting Form

One scripting form should be completed for each observation. Only directly observed teacher practices should be recorded during each visit. For each instructional practice observed, the observer will record the start time and end time each time it is implemented during the observation and describe the activity that occurs. The observer needs to be as specific as possible in regard to the description of the teacher practice. It is possible for multiple strategies to take place at one time unless otherwise noted in the definition of terms. For example, students may use manipulatives in cooperative groups or as individuals. Inquiry-based learning may take place within groups or individually.

Small Class Observation Summary Form

After each observation, the observer should complete a summary form using the scripting notes as a guide. The observer will complete an observation summary form that summarizes and describes the duration in minutes of each teacher practice listed. The observer will complete the instructional strategy section in order to describe the extent of the use of manipulatives, learning/work centers, differentiated instruction, student engagement, and teacher/student contact. Using the information gathered during the observation, the observer should rank the teacher on a Likert scale for these categories.

Definition of Terms

Teacher Practices

Teacher practices strategies include actual methods the teacher utilizes to have students acquire, practice, review, and learn knowledge and skills.

Direct Instruction is teacher directed and controlled. The teacher gives instructions, directions, and information to the whole class or in groups. The teacher explains a concept or skill to the class or groups. Students may practice the concept or skill under the direction of the teacher.

Independent Seatwork is where students are independently working on worksheets, taking tests, practicing skills, or completing other assignments by themselves or in groups. It must be noted that while students may be in groups, the difference between this and cooperative learning is in how learning takes place. Independent seatwork requires students to work individually even in while in groups.

Drill and practice may best be described as didactic teaching or recitation. The teacher and students are interacting but the emphasis of this practice is to have students repeat what the teacher is instructing. This activity may be done orally or in written form.

Teacher led question and answer should be distinguished from drill and practice in that q/a emphasizes understanding not repetition. The teacher asks probing and thoughtful questions of students. This may involve questions in connection with oral reading or lecture, and the q/a must be purposeful and extended as an independent strategy.

Individual tutoring is where students receive one-on-one help from the teacher in a planned context. Impromptu, informal contact between the teacher and a student in terms of question and answer does not constitute individual tutoring.

Cooperative/collaborative learning is best defined when students work together on tasks or projects requiring cooperation to meet specified goals. Groups may consist of either several students or pairs. Students must be working together to meet a common goal as a group. Partner reading is an example of cooperative learning.

Inquiry-based learning is project-based learning that focuses instruction around an inquiry or question. Skills and knowledge are gained through the process of authentic work. Students must be working on projects that exhibit authenticity in meaning and relevancy. The observer may need to ask the teacher whether the work observed is part of a project.

Instructional Strategies

Instructional strategies can be defined as how the teacher uses manipulatives as an instructional tool, organizes the classroom for instruction of material, provides for differing learning styles, promotes student engagement, and makes individual contact with students. The observer should take note of the class holistically to determine how the teacher integrates these instructional aspects. Each strategy needs to be ranked on the following Likert Scale: 5 = extensively, 4 = frequently, 3 = occasionally, 2 = rarely, and 1 = not observed.

Teachers use manipulatives as an instructional tool can occur in groups or individually. The teacher introduces tactile helps to introduce or review material with students. Teachers may have students use manipulatives individually, as a whole class, or in cooperative group settings.

Teacher uses learning/work centers for instruction is described when there are designated spaces in the classroom where students work as individuals or in groups on different tasks. Evidence of work centers not in use should not be coded as observed.

Teacher makes use of differentiated instruction includes planned adaptations and modifications of assignments or learning activities, or assessments according to individual needs and interests. Students may use different texts, worksheets, or other types of materials according to their need. The emphasis of this practice is in planning by the teacher. Differentiated instruction does not include students working on the same activity at their own pace.

Teacher promotes high level of student engagement can be observed across all types of instructional strategies. The teacher keeps students interested and engaged in learning tasks. This summary should be competed at the end of the observation period.

Teacher makes individual contact with student includes each time a teacher helps a student one on one. This is distinguished from individual tutoring in that it may not be planned. The teacher may move among students during individual seatwork or while students are working in groups and help students on an individual basis. The observer should not focus on the number of times the teacher makes contact, but he should summarize the overall experience at the end of the observation period.

Appendix E

Informed Consent Statement

A Study of the Instructional Practices of Teachers of Small Classes at Various Grade Levels

Introduction

The purpose of this study is to investigate the instructional practices classroom teachers utilize in small classes, and determine if instructional practices vary by grade level.

Research Questions

1. What instructional practices do teachers in this study employ in their small classes?
2. What differences and similarities in instructional practices exist between first and third grade Academy classes?
3. What changes in their instructional practices do teachers in this study perceive as a result of teaching small classes?

Information About Participants' Involvement In The Study

Procedures

I will interview teachers who teach small classes and record their responses on audiotape. Each interview will last thirty minutes, and will be conducted with each teacher once the observations are completed. The interviews will then be transcribed. I will also observe teachers' instructional practices in their Academy classes. I will use a summary form of instructional practices to note what practices teachers use in their classrooms. Three thirty-minute observations will be conducted on each teacher over a several week period during the spring semester of 2004.

All care will be given to keep the information confidential. The researcher will be the only person to know the true identity of each participant.

Risks

The only foreseeable risk to the participant would come if his/her supervisor would obtain the information gathered on instructional practices for evaluation purposes.

All interview and observation material will be kept confidential and only the researcher and project advisor will know the corresponding names to the data. Pseudonyms will be

Participants initials _____

used to maintain confidentiality. The school system and supervisors will not be provided observational or interview data.

Benefits

A better understanding of how class size influences instructional methodologies will be gained from this study. The participant will benefit by recognizing possible strengths and weaknesses in their daily classroom activities.

Confidentiality

All information in the study records will be kept confidential. Data will be stored securely and will be made available only to the principal investigator conducting the study and the project advisor unless participants specifically give permission to do otherwise. Transcriptions and observational data will be destroyed at the conclusion of the study. No reference will be made in oral or written reports which could link participants to the study.

Contact Information

If you have questions at any time about the study or the procedures you may contact the researcher, Ed Fickley, at 921 Dayton Mountain Hwy. # 4 Dayton, TN 37321, and 423-240-8304. If you have questions about your rights as a participant, contact the University of Tennessee Knoxville Compliance Section of the Office of Research at 865-974-3466.

Participation

Your participation in this study is voluntary; you may decline to participate without penalty. If you decide to participate, you may withdraw from the study at anytime without penalty without loss of benefits to which you are otherwise entitled. If you withdraw from the study before data collection is completed your data will be returned to you or destroyed.

Consent

I have read the above information. I have received a copy of this form. I agree to participate in this study.

Participant's signature _____ Date _____

Investigator's signature _____ Date _____

Appendix F

Academy Teacher Interview

Background Information

Date _____

Name _____

Years of teaching experience _____

Highest educational degree obtained _____

Grade level currently teaching _____

Area of Certification _____

Gender M / F

What subjects do you teach in a day? _____

How many students are presently in your Academy class? _____

How many years have your taught a reduced size ($\leq$15) class? _____

Interview Questions

1. Why did you decide to teach an Academy class?
    - In what ways did class size affect your decision to teach an Academy class?
2. Please describe the instructional practices you typically use in your Academy classes?
3. What methods do students in these classes respond to best?

4. What enrichment opportunities do you employ in your Academy class in addition to the standard curriculum?
    - Did you employ similar opportunities in your previous classes?
5. Do you find that you have time in Academy classes to go into more depth in the curriculum, and if so could you describe the different ways you do that?
6. Please describe the types of hands-on activities you are able to employ in your classes.
7. Do you attempt to individualize instruction in your Academy class? If so, how?
    - Did you use some of the same techniques in your previous classes?
8. If you had your choice, what would be your ideal class size and why?
9. Have you taught classes larger than 15 students in the past?

    If so, what instructional strategies do you tend to use in smaller classes that you did not use with larger classes?
10. Has teaching a small class changed the way you teach? If so, how?
11. Does class size affect the classroom environment and disciplinary issues in your Academy class?
    - If so, how does it impact your instructional practices?
12. Is there anything else you want to tell me about teaching in a small class?

Appendix G

Description of Participants

Abigail is a first grade teacher with a master's degree in education, and she has eight years of teaching experience. This is her first year teaching a small class (<15).

Betty, a first grade teacher, has 15 years of teaching experience. She currently holds a Bachelor of Science in elementary education and is teaching a small class (<15) for the first time.

Cameron is a first grade teacher who holds a master's degree. She has 27 years of teaching experience, and this is her first year teaching a small class (<15).

Donna has six years of teaching experience, and is a first grade teacher. She has a Bachelor of Science degree in elementary education and is teaching a small class (<15) for the first time.

Edwina has taught a small class (<15) two years, and holds a master's degree. She is in her twentieth year of teaching, and currently teaches first grade.

Faith is a third grade teacher who has 10 years of teaching experience. She currently has a Bachelor of Science degree in elementary education, and has taught a small class (<15) for two years.

Greta has taught a small class (<15) for three years, and has five years of teaching experience. She currently teaches third grade, and holds a Bachelor of Science degree in elementary education.

Hazel is a third grade teacher who has taught two years in a small class (<15). She has a Bachelor of Science degree and has three years of teaching experience.

Isabel, a first year teacher, has a Bachelor of Science degree. This is her first year teaching third grade and it is also her first year teaching a small class (<15).

June has been teaching eight years, and she is in her fourth year teaching small classes (<15). She has a bachelor's degree, and teaches third grade.

Vita

Edward William Fickley was born in Chattanooga, TN on September 2, 1967. He was raised in Brooksville, FL where he graduated from Hernando High School with honors. He attended Bryan College in Dayton, TN and graduated magna cum laude with a B.A. in history in 1989. He was honored at Bryan with Who's Who among American Colleges and Universities and the Senior Forensics award. He returned to Bryan and received his teacher licensure in 1991, and he is also certified with the Association of Christian Schools International. In 1996, he received his M.A. in Education: Administration and Supervision of Instruction from Tennessee Technological University and was inducted into the Phi Kappa Phi honor society.

Edward has been involved in education as a teacher and administrator for 13 years. He taught high school history for six years, and he served as head master for one year at Calvary Baptist School in Dayton, TN. For the past seven years he taught social studies at Cleveland Middle School in Cleveland, TN. He presently teaches American history at Cleveland Middle School and serves as team leader in the middle school concept. He is a member of the Association for Supervision and Curriculum Development, the Christian Educators Association International, and the Tennessee Association of Middle Schools. Edward is presently a doctoral candidate in Education with a concentration in Curriculum, Educational Research, and Evaluation at the University of Tennessee.